THE
Horticulturist
AND
JOURNAL OF RURAL ART AND RURAL TASTE.

VOL. II. AUGUST, 1847. No. 2.

A FEW MILES east of Boston, boldly jutting into the Atlantic, lies the celebrated promontory of NAHANT. Nature has made it remarkable for the grandeur and bleakness of its position. It is a headland of an hundred acres, more or less, sprinkled with a light turf, and girded about with bold cliffs of rock, against which the sea dashes with infinite grandeur and majesty. No tree anciently deigned to raise its head against the rude breezes that blow here in winter, as if tempest-driven by Boreas himself; and that, even in summer, make, of Nahant, with its many cottages and hotels, a refrigerator, for the preservation of the dissolving souls and bodies of the exhausted population of Boston, in the months of July and August.

At the present moment, the interesting feature at Nahant, after the Ocean itself, is, strange to say, one of the most remarkable gardens in existence. We mean the grounds of the private residence of FREDERIC TUDOR, Esq., a gentleman well known in the four quarters of the world, as the originator of the present successful mode of shipping ice to the most distant tropical countries; and, we may here add, for the remarkable manner in which he has again triumphed over nature, by transforming some acres of her bleakest and most sterile soil into a spot of luxuriant verdure, fruitfulness and beauty.

To appreciate the difficulties with which this gentleman had to contend, or, as we might more properly say, which stimulated all his efforts, we must recall to mind that, frequently, in high winds, the salt spray drives over the whole of Nahant; that, until Mr. TUDOR began his improvements, not even a bush grew naturally on the whole of its area, and that the east winds, which blow from the Atlantic in the spring, are sufficient to render all gardening possibilities in the usual way nearly as chimerical as cultivating the volcanoes of the moon.

Mr. TUDOR's residence there now, is a curious and striking illustration of the triumph of art over nature, and as it involves some points that we think most instructive to horticulturists, we trust he will pardon us for drawing the attention of our readers to it at the present time. Our first visit to his grounds was made in July, 1845, one of the driest and most unfavorable seasons for the growth of trees and plants that we remember. But at that time, perhaps, the best possible one to test the merits of the mode

of cultivation adopted, we found Mr. Tudor's garden in a more flourishing condition than any one of the celebrated places about Boston. The average growth of the thriftiest standard fruit trees about Boston, at that time, was little more than six inches to a foot. In this Nahant garden it was two feet, and we measured shoots on some of the standard trees three feet in length. By far the largest and finest cherries we tasted that season, were from trees growing there, and there was an apparent health and vigor about every species within its boundary, which would have been creditable anywhere, but which at Nahant, and in a season so unfavorable, quite astonished us.

The two strong points in this gentleman's gardening operations at Nahant, appear to us to be the following: First, the employment of screens to break the force of the wind, producing thereby an artificial climate; and second, the thorough preparation of the soil by trenching and manuring.

Of course, even the idea of a place worthy of the name of a garden in this bald, sea-girt cape, was out of the question, unless some mode of overcoming the violence of the gales and the bad effects of the salt spray, could be devised. The plan Mr. Tudor has adopted is, we believe, original with him, and is at once extremely simple, and perfectly effective.

It consists merely of two, or at most three parallel rows of high open fences, made of rough slats or palings, nailed in the common vertical manner, about three inches wide, and a space of a couple of inches left between them. These paling fences are about sixteen feet high, and usually form a double row, (on the most exposed side a triple row,) round the whole garden. The distance between that on the outer boundary and the next interior one is about four feet. The garden is also intersected here and there by tall trellis fences of the same kind, all of which help to increase the shelter, while some of those in the interior serve as frames for training trees upon.

The effect of this double or triple barrier of high paling is marvellous. Although like a common paling, apparently open and permitting the wind free passage, yet in practice it is found entirely to rob the gales of their violence, and their saltness. To use Mr. Tudor's words, "it completely sifts the air." After great storms, when the outer barrier will be found covered with a coating of salt, the foliage in the garden is entirely uninjured. It acts, in short, like a rustic veil, that admits just so much of the air, and in such a manner as most to promote the growth of the trees, while it breaks and wards off all the deleterious influences of a genuine ocean breeze—so pernicious to tender leaves and shoots.

Again, regarding the luxuriant growth, which surprised us in a place naturally a sterile gravel, we were greatly struck with the additional argument which it furnished us with in support of our favorite theory of the value of trenching in this climate. Mr. Tudor has, at incredible labor, trenched and manured the soil of his garden three feet deep. The consequence of this is, that, although it is mainly of a light porous texture, yet the depth to which it has been stirred and cultivated, renders it proof against the effects of drouth. In the hottest and driest seasons, the growth here is luxuriant, and no better proof can be desired of the great value of thoroughly trenching, as the first and indispensable foundation of all good culture, even in thin and poor soils.

It is worthy of record, among the results of Mr. Tudor's culture, that, two years after the principal plantation of his fruit trees was made, he carried off the second prize for pears, at the annual exhibition of the Mas-

sachusetts Horticultural Society, among dozens of zealous competitors, and with the fruit most carefully grown in that vicinity.

We have observed also, and noted as indicative of no small degree of practical skill, that in various quarters of the garden are standard trees, apples and pears especially, that have been transplanted from Boston, with large heads and trunks, six or eight inches in diameter, and are now in a state of complete luxuriance and fruitfulness.

There are, of course, but few individuals who have the desire and the means thus to weave a spell of freshness and beauty over a spot which nature has created so stern and bald; perhaps there are still fewer who would have the courage to plan and carry out improvements of this kind, to the attainment of so beautiful a result, in the very teeth of the elements. But there are many who may learn something valuable from Mr. TUDOR's labor in the cause of Horticulture. There are, for example, hundreds along the sea coasts, to whom gardening of any sort is nearly impossible, from the injurious effects of breezes loaded with salt water. There are, again, many beautiful sites that we could name on the shores of some of our great inland lakes, and the number is every day increasing, sites where the soil is deep and excellent, and the skies warm and bright, but the violence of the vernal and autumnal winds is such, that the better culture of the orchard and garden makes little progress.

In all such sites, Mr. TUDOR's Nahant screens for sifting the air, will at once obviate all the difficulty, temper the wind to the tender buds, and make for the spot a soft climate in a naturally harsh and bleak aspect.

TWO NEW AMERICAN CHERRIES.

BY F. R. ELLIOT, CLEVELAND, OHIO.

DEAR SIR—I have the pleasure of forwarding to you outlines and descriptions of two seedling cherries, originated by Professor KIRTLAND of this place. They have borne very excellent crops for two seasons past, and we have compared them with all the leading foreign and native sorts, and cannot but rank them among the *best*. We have, among the seedlings, *many* equal to Black Heart; but as we do not consider a new variety, merely equal to that fruit, as one any longer worthy of attention, we shall say nothing of such seedlings. From about two hundred seedling trees, we find about thirty which, in the quality of their fruit, will not, we think, rank below Black Heart. Out of these thirty, we think, taking Elton as a standard, we shall find seven or eight that are truly superior. For the present, I will offer to the attention of your readers only the two following, both raised by Professor KIRTLAND, from the seeds of the Bigarreau.

Fig. 8. *Rockport Bigarreau*

1. THE ROCKPORT BIGARREAU.

Fruit large, round heart-shaped; colour, when fully ripe, a most beautiful light, clear, deep red, shaded into a delicate pale amber-

coloured ground, with occasional spots like the Napoleon Bigarreau, but not so numerous. Flesh of a rather yellowish tinge, firm, juicy and sweet, with a rich flavor, superior, we think, to any variety in cultivation. It ripens, at least, two weeks earlier than the Napoleon Bigarreau. Pit, oblong-oval. Tree of strong upright growth.

II. THE CLEVELAND BIGARREAU.

This excellent fruit has the merit of being among the first of its class to ripen. It is at full maturity with the Black Tartarian, while its parent, the Old Bigarreau, ripens nearly two weeks later.

Fruit of the largest size, considerably like that of the Bigarreau; regular in form, rounded heart-shaped, marked by a broad deep suture half-way round. Colour, bright, clear, delicate red, on amber-yellow ground. Stalk tolerably stout, about an inch and a half long, curved. Flesh, pale yellowish white, firm, juicy, sweet, with the rich flavor of the Elton. Pit, small.

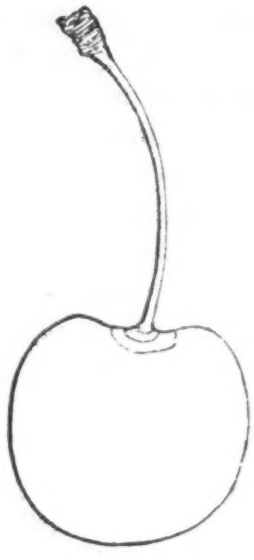

Fig. 9. *Cleveland Bigarreau.*

You will observe, that I send you this account, fully conceding that, although the list of fine cherries is, perhaps, less extended than that of any other like valuable fruit, it is hardly worth while to notice any new ones, and certainly not to cultivate them, unless they possess *superior* qualities. It is questioned by some of us in this section of Ohio, whether a seedling of our own, alike valuable, with any foreign variety, is not more valuable as being more hardy for cultivation here. This, as well as the fact that the two varieties just described are of earlier maturity than the standard sorts which they most resemble, seem to me to render them well worthy of the attention of the pomologist. Very truly yours,

F. R. ELLIOTT.

Lake Erie Nursery, Cleveland, Ohio, June 29, 1847.

REMARKS ON THE SCIENCE OF GARDENING—No. 3.

BY DR. WM. W. VALK, FLUSHING, L. I.

IN our No. 1, upon this interesting subject, we stated, at the conclusion of the article, that "but for our instrumentality," some of your readers might never, perhaps, obtain the benefit to be derived from viewing the matter properly, or, at least, so far as it has been elucidated in the writings of English horticulturists. By Mr. PAXTON, or some one of the numerous and able writers in his magazine, gardening *as a science* has been most interestingly discussed, and it is from this source we derive the materials of our serial communications, and claim for them no more merit than may be accorded to the modifications of the ideas and language of other authors, and their adaptation to the American reader. We so stated at first, and here repeat it.

The reading public have long been tutored in error, by those who have been considered physiological authorities: this is a sweeping and bold assertion; but we are led to make it by the perusal of a work by a scientific German—*Liebig's Organic Che-*

mistry. Appearing a few years ago, it created no little sensation, and very possibly may effect an entire revolution in the study of vegetable physiology. As an analytic chemist, the author ranks inferior to none; and the views he takes of the chemical processes engaged in the nutrition of vegetables are so striking, that it becomes imperative to direct our attention to them in the course of these articles, in order to exhibit truths which have not been heretofore noticed. A few leading paragraphs will be extracted, and such comments appended as may be required to render more lucid the admirable views of the author.

To understand the culture of a plant, the elements which constitute, or exist in its structure, must be known; therefore the first part of Liebig's work is "devoted to the examination of the matters which supply the nutriment of plants, and of the changes which these matters undergo in the living organism." Subject to the operation of the vital principle of a plant, which must never be lost sight of, it becomes an object of the greatest moment to determine what the organs of a vegetable (that is, its tissue or structure,) and the fluids they contain, are composed of; for if *these* be ascertained, the gardener is prepared to supply it with those substances which can be converted into nutritive aliment; whereas, if he be ignorant of these leading points, (and how many gardeners know any thing about them?) he is just as likely to poison his plants, as to promote their healthy development; for "the food which can serve for the production of *all* the organs of a plant, must necessarily contain all its elements."

"The substances," says Liebig, "which constitute the principal mass of every vegetable, are compounds of carbon, with oxygen and hydrogen in the proper relative proportions to form water. Woody fibre, starch, sugar and gum, for example, are such compounds of carbon with the elements of water. In another class of substances containing carbon as an element, oxygen and hydrogen are again present, but the proportion of oxygen is *greater* than would be required for producing water by union with the hydrogen. The numerous *organic acids* met with in plants, belong, with few exceptions, to this class. A third class of vegetable compounds contain carbon and hydrogen, but *no oxygen*, or less of that element than would convert the hydrogen to water. These may be regarded as compounds of carbon with the elements of water and an excess of hydrogen. Such are the volatile and fixed oils, wax, and the resins. Many of them have acid characters. The juices of all vegetables contain organic acids, generally combined with the inorganic bases or metallic oxides; for these exist in every plant, and may be detected in its ashes. *Nitrogen* is an element of vegetable albumen and gluten; it is a centient of the acids, and of what are termed the 'indifferent substances' of plants, as well as of those peculiar vegetable compounds which possess all the properties of metallic oxides, and are known as 'organic bases.' It follows, from the facts thus far detailed, that the development of a plant requires the presence—first, of substances containing carbon and nitrogen, and capable of yielding these elements to the growing organism. Secondly of water and its elements; and lastly, of a soil to furnish the inorganic matters, which are likewise essential to vegetable life."

The intelligent reader will at once recognize in this quotation, the leading principles of vegetable culture; the main facts are not new, nor are they doubted by any philosophic observer; but they have been *misunderstood* and *misapplied*, as shall be

made to appear in due time. It has been and will be our desire to avoid all dark and mysterious terms—terms strictly professional; but as those who allude to science, must, to a certain extent, employ its phraseology, words have been cited, which are in the mouths of numbers, and are to be heard every day, though in point of fact, they are very little understood, and much less appreciated.

In order to convey some idea of the express meaning of these terms, a few words may be said upon each of the vegetable constituents above noticed, though not strictly in the order in which they occur.

Carbon. This substance enters largely into the composition of all vegetable products. The word implies coal, or charcoal, and is most readily interpreted by referring to the charcoal of wood—that substance which remains after its slow combustion, particularly in those close iron retorts which are used in the manufacture of pyroligneous acid. Its quantity is very great, though various, and may be stated as approaching to a little less than half the entire weight of the dried wood.

Oxygen, as far as we know any thing of it, is an air or gas:—it is that vital principle of the atmosphere which sustains respiration, light and flame; and exists *invariably, at every season*, in the proportion of 21 parts of every 100 of air, by measure.

Nitrogen is that inert portion of air remaining after the removal of the oxygen; it constitutes the bulk of the atmosphere, and amounts in volume to 79 parts of every 100. It is not respirable, cannot support flame, and is fatal to life; its presence being easily shown by placing a lighted taper under a bell-glass, the rim of which is immersed in water to preclude the access of air. As the taper burns, the water will rise in the glass, and when the flame is extinguished, (which it soon will be,) the fluid will leave its mark at a point that will prove *one-sixth* of the air to have been removed. The experiment is not accurate, though very near the truth.

Hydrogen is the basis of water; it exists throughout nature wherever that fluid, or moisture derived from it, exists. Separated from water, it is revealed as a gas, the *lightest* of all things that have appreciable weight. It unites with oxygen in the proportions by weight of 1 to 8, and by measure, of 2 hydrogen to 1 oxygen. If the smallest electrical spark be passed into the mixture thus proportionally blended, these aerial elements explode violently with a flash of light, and watery vapor is produced. So, if a stream of galvanism be passed through water, the two gases of that fluid are again developed in the above mentioned proportions.

The phenomena attending this electrization of water are perfectly astounding, nor can any adequate idea be formed of them, without referring to the "New Researches on Electricity," by Professor FARADAY of the Royal Institution. "One grain of water," he says, "will require an electric current to be continued for three minutes and three-quarters of time to effect its decomposition, in quantity sufficient to retain a platina wire $\frac{1}{100}$ of an inch in thickness, of any length, red hot, in contact with the air." This quantity is equal to "800,000 charges of a Leyden battery, charged by thirty turns of a very large and powerful plate electric machine." "The chemical action of a grain of water upon four grains of zinc, can evolve electricity equal to that of a powerful thunder storm." These passages are sufficient to convey "an almost overwhelming idea of the extraordinary quantity or degree of electric power which naturally belongs to the particles of matter.

The electrical elements of vegetables and plants have thus been slightly glanced at, not with any view to introduce discussion, but to render it manifest that horticulture can never be duly understood or correctly applied, until its principles be determined. In common with agriculture, it must be scientifically investigated by professors duly qualified to analyse and instruct; and the world is deeply indebted to JUSTUS LIEBIG, for he has distinctly proved, that cultivators are wandering in the dark, though means are at command, were they duly applied, to remove difficulties and obviate perplexities, by the establishment of positive facts.

The practical gardener, if he duly appreciate the quotation and remarks, will see at a glance the reason of his embarrassments and failures; he will also be sensible of the wondrous mechanism he superintends; he will perceive that, from the four elements described, all the specific fluids of his plants, their chemical and medicinal principles, their sapid and odorous qualities are derived, and, therefore, if a plant do not meet with its proper aliment, or rather, if it be exposed to agents which disturb the natural assimilations, a morbid action must be induced and disease certainly follow. But again, plants must be duly supplied with *inorganic* substances, all such not being the products of vital organization, viz., earths, metals, potassa and soda. As these will be alluded to more particularly hereafter, it will now be sufficient to observe, that they are derived chiefly from the soil, and therefore in the culture of the floral department, and of all plants in pots, the gardener is peculiarly liable to commit error, and incur vexatious contingencies.

Vegetable physiologists, seeing the impossibility of introducing any solid substances through the porous system of the roots, have been tempted to refer to *carbonic acid*, dissolved in or united with the sap, as the prime source of vegetable nutriment; and, following up this view, agriculturists have adopted the modern theoretic notions respecting humus and humic acid. We are mere infants in experiment, and what we *know*, may be comprised within a nutshell. But we have now arrived at a period of research and experiments, when we may assume a direction better calculated to lead to precise results. Heretofore we have seen them conducted upon detached parts of plants—mere mutilations. "Can the laws of life be investigated in an organized being, which is diseased or dying?" We think not. "Is not the observation of a wood or a meadow infinitely better adapted to decide so simple a question, *than all the trivial experiments under a glass globe?*"—LIEBIG.

The question is full of meaning, and can only be solved by diligent and careful research.

WM. W. VALK, M. D.

Flushing. L. I., July, 1847.

THE WHOLE SECRET OF GROWING QUINCES.

BY AN OLD ORCHARDIST.

SIR—I will comply with your request to write down for the benefit of your readers my practice in cultivating the *Quince* tree. The commendations you are pleased to bestow on my plantation of this fruit tree, leads me to suppose that I may have struck out a mode better than is generally known or practised.

If so, "it ought," as you say, "to be a secret no longer." Indeed, I have had too

many valuable hints from the pages of your journal, not to be willing to add my mite, should it be in my power, to the general stock of information.

I will begin, then, by saying that the great difference, which you have yourself noticed, between the growth and yield of my quince trees, and that of cultivators commonly, is, not that I have discovered a new mode of raising this valuable fruit. It is rather *that I cultivate my trees well*, and *most persons do not cultivate them at all.*

This sounds like a broad statement. But it is true. I have a neighbor who rides horticulture like a real hobby. His garden and orchard are filled with the hundreds of new pears, and other prodigies of the nurseries. I must do him the justice to say, that he grows these well. He told me last week that he had three hundred and forty sorts of pears in his collection! But, would you believe it? the only Quinces he has, are three trees, half starved, and thrust into an obscure quarter of his grounds, where they have neither been manured nor dug around, I dare say, for years! And thus he sends to me every year for some of my "handsome quinces," under the plea, that his soil does not suit them.

Believe me, the Quince tree is a great sufferer from the common delusion that it is a *bush* that wants a damp and shady place; that it will not grow in a dry soil; and that it does not need any manure.

My theory and practice are based on the very opposites of these three propositions. My plantations, as you saw, are on a high and dry soil, in an open sunny exposure, and in ground kept thoroughly enriched.

I have arrived at this plan of culture by easy stages. Indeed, I have, at the present time, some rows of Quinces, *indifferently planted* in the first place, in soil neither deepened nor duly manured beforehand. Of course, they bear only about half the crop of my later plantation, that has been better treated from the beginning.

The course I have now settled upon, which I may say has been attended with perfect success, is as follows: Premising that the Quince will grow on any soil that will give good corn or potatoes, the first maxim is, that it should be well prepared before planting. This is done by the aid of that great earth regenerator, the subsoil plough. Two or three weeks, if possible, before the planting season, the land where the quince orchard is to be set, should be broken up by a team of horses and a good plough, set so as to turn a clean furrow. Following this team comes the subsoil plough, drawn by a powerful pair of oxen. This breaks up and stirs the soil twice the usual depth. Most persons spread a coat of manure before plowing. It is my practice to have it scattered along *in the bottom of each furrow*, from a light cart, which follows the subsoil plough. This places it at the bottom of my soil, which, *as it is a loamy one*, is the best place for it; because it enriches the poorest layer, and being always damp, it is, I conceive, always more soluble, and ready for the roots to take up, than when mixed with the top soil.

The soil, thoroughly plowed and prepared, planting may commence. I prefer the *spring*, but I have often been equally successful in the *autumn*. But in either case, by all means, "take time by the forelock." Not later than the first of November, or the tenth of April, for the latitude of New-York may, I think, be safely given as sound advice.

Dig your holes twice as large as the roots of the trees, and eighteen inches deep. Have, if possible, half a barrel full of good compost, (stable manure and bog earth well mixed for three months previously,) for

each tree. Shorten in the branches, (one-half of the last year's growth,) before you set the trees, and give the roots a good drenching with water before you cover them entirely with soil. Press the earth moderately about the roots, and leave the soil round the stem concave like a saucer, to catch the showers. In this way, if you lose one plant in a hundred, it will be an exception to my usual good luck.

In orchard plantation, I would recommend the Quince tree to be put out in rows: the trees to be ten feet apart, and the rows to be twelve feet apart. This will be near enough in good soil, deep, and prepared as I have just described. You will be able to gather a good crop of fruit from such a plantation three years after it is made; and if it is well treated, it will continue in a productive state for *thirty years.* Such quinces as I have grown in this way will always command two cents a piece in the New-York market, when those carelessly grown, are not worth half that sum; and I doubt if there is any much more certain and profitable orchard crop than the quince. I ought to observe that for many years open spaces in the ground occupied by the quince orchard, may be cropped with potatoes, sugar beets and the like, with profit and advantage to the trees themselves.

The annual treatment which I give my quince plantations, is, as nearly as possible, as follows: I prune my trees in the autumn, just after the fall of the leaf. This pruning consists in cutting out *as little as possible*, mainly old or decayed wood, or any branches that make the head too thick or unsightly.

In November, I fork in around the roots of each tree, five or six shovelfuls of fresh stable manure. This dissolves in part by the autumn rains, and fills the soil with soluble matter ready for the first absorption by the young fibres in spring.

When the spring opens, I have the ground ploughed between the rows, and lightly stirred beneath the trees. Directly after this, I give the whole a broadcast spread of salt, at the rate of ten bushels to the acre, or just a light coat sufficient to half conceal the ground under each tree. The cheapest and best salt for this purpose, is the refuse salt of the packing houses, to be had in all large cities where meat is packed for exportation.

I observe that one of your correspondents in Oneida county, has recommended salt for this tree in the last number of your journal. It is a good thing—I may say, the best thing for this fruit. I have used it now for five years, very plentifully, and can say with much confidence, that it is the *sine qua non* for the Quince tree. Deep green foliage, thrifty growth, and large fair fruit, have, with me, invariably followed its judicious application. The Quince and the Plum will bear more of it than any other fruit tree; and provided there is sufficient strength in the soil—that is, provided manure is also given—it may be used every year with decided advantage. I have found by experience, two things: first, that necessary as manure is to the Quince tree, yet common manure without salt will not give the very finest quinces; and second, that a poor soil will not bear heavy doses of salt without injury to vegetation.

Every tree has its insect. The only one worth notice, that infests the Quince, is a little rascal, a sort of *Scolytus*, I believe, that kills the ends of the branches. The egg is deposited about midsummer. The next spring, the little grub which succeeds it, eats through to the pith of the branch, and cuts away the sap-vessels just at the time—midsummer—when they are most wanted. Of course, the shoot above the insect withers and turns black. If this is

"let alone," it will spread over your whole plantation. If, on the contrary, you give a little attention to it—say a few minutes every day, from the first day in June, that the dying shoots begin to show themselves, cutting off the limb six inches below where it is blackened, and burning up the trimmings immediately, you will gradually get rid of the whole brood.

If there is anything in this rather prolix account that is worth making public, it is at your service. I am, sir, your obedient servant. AN OLD ORCHARDIST.

New-York, July, 1847.

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[Our correspondent's article is one of the most valuable that we have published, and speaks for itself. For the good results that follow the mode of cultivation which he has detailed, we can vouch most confidently.—ED.]

ON THE ENGLISH RURAL COTTAGE.

ALL the world has agreed, that there is nothing more perfect of its kind than the rural architecture of the English. The cottages of that country are as widely different in effect from those of any other, as the Anglo-saxon race differs from all else—civilized or barbarous.

What this difference consists in, there are, perhaps, few who take the trouble to analyze. Many persons suppose it to lie in pointed gables and high roofs. Still these were not originally English, but were borrowed from Flanders. Yet the Flemish cottages have little or none of the peculiar beauty which charms us in those of England.

Others have imagined that it is something especially becoming in the features of the English landscape itself. Yet this can hardly be true, since we have seen faithful copies of the English cottage, built in equally picturesque scenery, in this country, without producing upon the mind the same impression as the original edifice.

The secret charm of the English cottage lies, we imagine, in its *home expression* and its *rurality*. These crowd the mind of the beholder at once with the most agreeable associations, and superadd to the idea of a habitation, and a tasteful piece of architecture, all the endearments and enjoyments of home, and all delights of rural beauty and repose.

The English cottage, even of the humblest class, is surrounded by trees, embowered with vines and climbers, and hedged about with shrubs, to a degree quite unknown in any other country. The love of trees and flowers is an universal passion in that country, and man, woman and child, among the cottagers, take an especial interest in the green adornments of their home. Slips and roots find their way from the pleasure grounds of the nobleman's mansion to the humble garden of the cottage; and there is a personal and individual care bestowed upon them, even by those who have scarcely any other of the refinements of life, that neither the people of the continent, nor of this country have, as yet, any positive share of.

The effect of all this taste is to spread a beautiful drapery about the rural cottages of England, that renders what would otherwise be little more than rude cabins, little gems of rural and picturesque beauty. Indeed, strip most of the loveliest cottages of England of their sylvan and floral enrichments, and they would absolutely lose their whole power of charming. What, among the French, the nice sense of the becoming

and tasteful in dress, is to the human form divine, that among their garden-loving neighbors, the English, is the national feeling of the adaptation of rural decoration to country houses and cottages.

Our FRONTISPIECE gives a view of an English cottage, which may be taken in illustration of our remarks. It represents a new *Dairy Cottage*, in the grounds of Arundel Castle, a very short time after its completion, and before sufficient time had elapsed to enable those who are to care for it, to weave about it all the witchery of the "flower and the leaf." Nothing can well be simpler than its plain stone walls. It is true, they have a certain definite architectural form, but there is an almost total absence of the tracery, carvings and enrichments, which many, adopting the style in this country, consider so necessary to a beautiful effect. Look at this cottage, (the real one, we mean,) four or five years hence, and you would scarcely know it. Ivy and clambering roses, and bright blossoming creepers, will then have decorated it, and given it a finish more fascinating than the carving of the carpenter, or the chiselling of the stone-cutter. And, better than all, with the embellishment comes the feeling that it symbolizes the taste and the habits of the dwellers within the cottage, and that where there is so much rustic love of beauty and home pleasures, there must also be something of purity and happiness.

REMARKS ON THE MANAGEMENT OF PEAR TREES.

BY THOMAS RIVERS, SAWBRIDGEWORTH, ENGLAND.

[WE quote from the last number of the Gardener's Chronicle, the following interesting article on the management of the Pear. The author, Mr. RIVERS, is not only one of the most skilful and correct of all the English nurserymen, but is also a careful observer of facts in the art of culture.

Our readers will bear in mind the great difference in favor of American fruit-growers, as regards climate, for the standard culture of the pear. Our advantage, in brighter and warmer skies, makes it easy for us in many parts of the country, to grow most varieties to the highest perfection, when grafted on pear stocks, and raised in the common way, as *standards*. In all sites, where, from unfavorable soil or climate, it is at all difficult thus to raise fine pears on pear stocks, a remedy will usually be found in the employment of quince stocks.

We have had opportunities of learning very recently, that in situations on the sea-coast, as well as others very far south—bordering on the Gulf of Mexico, the pear on the quince stock always thrives decidedly better than on its own root.

This does not prevent us from thinking, that, for *orchard culture*, where the pear thrives as it does in the interior of this state, pear stocks are much to be preferred.

There are a few sorts, however, such as Beurre Diel, Duchess of Angouleme, etc., which are almost invariably so much higher flavored on quince stocks, that they should only be grown in the latter way. Mr. RIVERS' notes of the qualities of the different sorts, grown on the quince stock, are interesting, and we would be glad to collect from our correspondents in various parts of the Union, memoranda touching the same subject in this country: i. e. what varieties of

pear, of second rate quality on pear stocks, are found to be first rate on quince stocks? We have made notes on this subject ourselves, but need additional data from the experience of others.—Ed.]

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I feel that it is a duty I owe to your correspondents and the gardening world generally, to notice the letter of a "Constant Reader," in No. 21. It will, perhaps, be the better mode to take his questions and remarks *seriatim:* He says, "I have been for years much interested in the proper stock for fruit trees; my impression is, that the Pear cannot be produced in its highest state of perfection (whatever the mode of treatment or the stock used) on any other stock save the pear stock." To this I can answer most positively, that the very finest Pears I have ever seen or tasted, have been produced on pear trees grafted on the quince. I use no stocks but the pear and the quince; the former for orchard trees, or for those who prefer the pear stock; the latter solely for garden trees, principally to form prolific pyramidal trees, for which they are unrivalled both in beauty and fertility. I fear "Constant Reader" has also been constant to his home; has never seen or tasted the magnificent pears in some of the fruit gardens near Paris? has he never seen the pear trees in the Potagerie at Versailles? or tasted the fruit from them? (Mind, trees there are nearly all grafted on the quince.) If he has not done this, he has yet something to see and taste. I repeat, that I use only the pear and the quince as stocks, and I find the pear stock submit as kindly to root-pruning (or even more so,) as the quince. I can illustrate the good effects of root-pruning very forcibly in my specimen orchard, and at any time your correspondent may see and believe; however, I must tell my tale, and then proceed.

About thirty years ago, my father planted some rows of pear trees in a portion of the nursery, then a recent purchase; these were all common sorts of pears, standards, grafted as usual on the pear stock. They grew most luxuriantly for some eight or ten years, when their leaves began to change from their usually vivid green to a light yellow; in a year or two, this yellow tint increased till their foliage was really of a bright straw colour; the trees, soon after, all died, so that at the end of fifteen years not a tree was left in this portion of the nursery, the subsoil of which, I must add, is hard white clay, full of chalk stones; this peculiar soil occupies a very small space, not more than a quarter of an acre, as the neighboring soil is a tender sandy loam.

When I came to years of thinking, the untimely fate of these pear trees was often present to my mind, for I remembered so vividly, with what pleasure I had filled my pockets from them; I, at that time, also found, that to be able to know any thing about pears, I must have a specimen tree of every kind that I cultivated. No other but this "pestilent spot" of earth happened to be just the place most eligible as a site for my specimen ground. What could I do? I did not then think of root-pruning, but I thought I should find some way or other to avert the untimely fate of my trees; I therefore planted them in the usual way, digging the holes about two feet in depth, and mixing some manure and compost with the earth taken from the holes, but leaving the hard clayey subsoil below, to the depth of two feet, untouched. I watched my trees narrowly after four or five years, as I then expected to see traces of the effects of the clay soil upon them. I think some eight years must have passed and gone before their foliage turned yellow. My first thought said remove them to a different site and soil; second thought, take them up, and give them some fresh compost; they will last a few years, and you can then find a good place for them; third thought, if you can renovate them for a few years, by taking them up and replanting, why not do this periodically, so as to keep your trees healthy; the site is good, make the soil equally so; fourth thought, what occasion is there to remove the tree? cut its principal roots, leave those that are fibrous: and so I became a pruner of roots. Now for effects, and "A Constant Reader" must recollect, that any day the Eastern Counties rail will carry him either to Harlow or Sawbridgeworth, each equally convenient, for a few shillings, to see with his own eyes all that I state.

In my specimen ground are several stand-

ard pear trees, from eight to ten years old; these terminate long rows of standards, left to grow as nature dictates, both root and branch, except occasional thinnings of their heads. These, it must be recollected, are among my root-pruned specimen trees, a great number of which are from twelve to fifteen years old. They have had their roots pruned three times within these eight years, the last time in December, 1844. They are now full of health and foliage and fruit; in fact, all that I can wish them to be. The standard trees, with roots unpruned, have their leaves yellow, and are, I fear, hastening to death.

I now proceed to give a list of such sorts of pears that, on my soil, are decidedly higher in flavor when grafted on the quince, and not (as your correspondent almost ludicrously says, "partaking of the flavor of the quince.") Pray, have you or Mr. Thompson ever ate a quince-flavored pear? i. e. a pear having such a flavor from being grafted on the quince, (as I well know there are many pears with a very odd flavor.) Does the Ribstone Pippin taste of the Crab because it is grafted upon it? Does the Peach acquire the flavor of the Mussel plum because it is budded upon it? Does the Greengage ever taste sour and austere? and yet it is almost invariably grafted upon the common Wild Plum, which is uneatable, from its peculiar astringent acidity. I do hope, for the credit of your paper, that your correspondent is not your "Constant Reader." To return to my list, I must first premise that every sort of pear is, as far as my experience at present goes, improved by being worked upon the quince; but the following, in List I., are remarkable for growing freely on the quince, in most soils, without being double worked, bearing large fruit, of the highest flavor:

LIST I.

1. Beurre d'Amanlis *
2. " Ananas.
3. " d'Aremberg.
4. " de Capiaumont.
5. " Diel.
6. " Easter.
7. Bon Chretien, Williams'.
8. Chaumontelle.
9. Citron des Carmes.
10. Colmar.
11. Colmar d'Aremberg.
12. Comte de Lamy.
13. Crassanne.
14. Doyenne gris.
15. Doyenne whi e.
16. Duchesse d'Angouleme.
17. Duchesse d'Orleans.
18. Forelle or Trout Pear.
19. Fortunee (Parmentier).
20. Franc Real. Summer.
21. Glout Morceau.
22. Gratioli of Jersey.
23. Jargonelle.
24. King Edward's.
25. Louise Bonne de Jersey.
26. Napoleon.
27. Passe Colmar.
28. Poire Chenille.
29. Princess Royal (Groom.)
30. St. Denis.
31. St. Germain.
32. Van Mons' Leon le Clerc.
33. Vicar of Winkfield.
34. Wilhelmina.

* D'Amanlis according to most French authors; D'Amalis according to Horticultural Catalogue of Fruits.

There are many other sorts that I feel almost assured, will do equally well on the quince stock as the above. I forbear to add them till I am fully convinced by proving them.

No. 3. Of this I ate my best specimens about the middle of last April; they were vinous, juicy and delicious, from plants on the quince. Specimens from plants on the pear stock, kept only till the end of February.

No. 5. This pear seldom ripens well from trees on the pear stock; on the quince, the fruit are larger, more handsome, of perfect flavor, and they invariably ripen well.

No. 6. On the pear stock here, (it must be borne in mind, that I am always referring to trees in the open quarters, not wall trees,) this is a most crab-like pear, bearing but very seldom, and never ripening: on the quince it bears well, is of high flavor, and always ripens in April and May; it is, however, inclined to be gritty at the core, and this at present is the only pear I have found to be so from the quince stock.

No. 19. This is a perfect crab from trees on the pear stock; from the quince it is very melting and juicy, and really a good small late pear. I ate my last and only specimen this day, May 26.

No. 21. Grows freely here on the pear stock, and blooms freely, yet seldom bears any clear fruit; they are generally full of spots, and often do not ripen at all kindly. On the quince stock it bears clear handsome fruit, which invariably ripen, and are very highly flavored.

No. 23. On my finest soil here, a tender loam six feet in depth, subsoil sand, this sort always cankers, and very seldom produces any good fruit; in short, it is a very shy bearer when on the pear stock; on the quince it grows freely, and bears most abundantly; fruit fine and clear, and of high flavor.

No. 25. This, of all the pears I know, is most benefitted by working on the quince. My specimen tree, on a pear stock, now twelve years old, has scarcely borne a dozen good clear fruit, and some standards of near.

ly twenty years' growth canker at the tips of their shoots, and their fruit is in most seasons, spotted and misshapen. On the quince how different! I have trees, from three to five years old, full of fruit, and these have hitherto every season been large, remarkably high coloured, beautiful and of the highest flavor. "Constant Reader" will, I think, see that I have some confidence in the Quince stock, when I state that I have a young plantation of this variety, on the quince, of 1500 trees, which I hope to make up in the autumn to 3000; these are to bear to supply the London market. At the expense of being thought a little egotistical, I must tell him that I am not only a pear-tree grower, but also a pear grower; Providence has kindly blessed me with fifty acres of good land, on which roses and pears, and I know not what, seem to be "very happy;" this is a favorite phrase with one of our best gardeners, who when he sees a tree in fine order, or one the contrary, designates them "happy and unhappy trees."

No. 27 bears here on the pear stock a tremendous quantity of fruit; these are often inclined to speck, and they seldom ripen well in the fruit room. On the quince stock the fruit are clear, always ripen well, and are of the highest flavor. I have, as above, given my remarks on a few well known and preferable sorts; they may be applied, with slight modifications, to all the varieties in List I.

LIST II.

Pears that require double working, before they will succeed on the quince; this is merely grafting or budding some free-growing sort of pear on the quince, and then regrafting the graft the following season with the "refractory sort," to use the expression of your friend "Dodman."

1. Bergamot, Autumn.
2. " Gansell's.
3. Beurre Bosc.
4 " Rance.
5. Broom Park.
6. Brougham.
7. Crassane, Althorp.
8. " Winter.
9. Dunmore.
10. Hacon's Incomparable.
11. Inconnue, Van Mons, 175.
12. Jean de Witte.
13. Marie Louise.
14. Monarch, Knight's.
15. Nelis, Winter.
16. Ne plus Meuris.
17. Saint Marc.
18. Seckel.
19. Suffolk Thorn.
20. Thompson's.
21. Urbaniste.

No. 3 is exceedingly "refractory," and I am not quite sure that it will live and flourish for any lengthened period, although double worked on very thrifty stocks. In some soils this fine pear does not ripen well on standards; it is therefore very desirable to get it to do well on the quince, as it will, I have no doubt, bear when the tree is young; at present it is, while young, a shy bearer.

No. 4. My standards of this sort on the pear stock, too often bear misshapen fruit, inclined to speck and crack, and in some seasons, not ripening well on the quince. Its fruit is clear, fine, and remarkably high flavored.

No. 11. I notice this Pear, as I remarked a short time since one of your correspondents inquired of you its origin, which you could not give. I received it with several other sorts, from M. Van Mons, about eighteen years ago. I understood him at the time, that they were seedlings not then named; this is a very hardy and excellent late pear, about the size of Beurre d'Aremberg, but larger, first-rate in quality as a melting pear, and fit for the table from February to April. The sorts then received were placed in the nursery catalogue, as "Inconnue, Van Mons," and numbered. They all still stand under the same name, with different numbers attached.

The sorts I use to form a stock on the Quince for regrafting, are Beurre d'Amanlis, Jargonelle d'Automne, Fondante de Brest. These all form the most luxuriant stocks. Grafting on the quince often fails. I have known eighteen out of twenty to succeed in some seasons, and the same number to fail in others. It is an uncertain mode; budding is preferable. For double working you may always graft, that is, if you prefer it, or if your buds fail. Grafts succeed perfectly on the shoot of the pear produced from the quince stock the preceding season. I earth up my trees to encourage them to root close up to the junction of the graft with the stock, but not with the view of making the graft root. I wish to avoid this, as the effect of the quince stock is then lost. If you wish for cultivated pears on their own roots, there is much time and labor lost by this mode; for any variety of pear may be layered, and good plants obtained in about two seasons. And now for

the last paragraph of your "constant" friend. Can we always find "soil and locality in every respect suitable" to the growth of foreign varieties of pears? Is not our method of placing them against walls and espalier rails, etc., "unnatural?" The peach tree, which, in the United States, in a natural state, bears such enormous crops, bears here at least equally fine fruit, but in most "unnatural" places. My root-pruned pear trees, many of them, I have purposely made to contend against nature; in a soil that is naturally c eath to them, I make them flourish. To use the oft-quoted sentence, "A man that can make a blade of grass to grow," etc., is a benefactor to his race, and if I can, by precept and example, enable the numerous occupiers of small gardens to grow pears and apples for their dessert nine months in the year, and plums and cherries during the summer, shall I not also be a benefactor in an humble way? I hope so.

Allow me to advise your correspondent to visit the horticultural gardens at Chiswick; he may there see pear trees of some twenty-five years' growth on the quince stock, with roots protruding from the stock close to its junction with the graft. Pictures of health and fertility, they have borne many bushels of fruit, and yet I have never heard the Fellows of the Horticultural Society complain that they tasted like quinces. Some fine trees of about the same age on the quince, are also in the border. These were all removed about two years since, and of course their roots were pruned; on them may therefore be seen the effects of root-pruning.

I will conclude with the words of "Dodman:" "a very little care and judicious selection of sorts would insure them (pears) daily, from the end of July till May. I may add, that any garden ten yards square, or even less, will, with the quince stock for pears, the Paradise stock for apples, the Cerasus Mahaleb as a stock for cherries, judicious root pruning and surface culture, supply a very ample dessert of delicious fruits. THOMAS RIVERS.

Sawbridgeworth, Herts., June 5, 1847.

COE'S TRANSPARENT CHERRY.

HAVING heard, for the last two years, very high eulogiums passed upon this new seedling cherry, raised in the interior of Connecticut, we procured, through the kindness of a friend and neighbor, who made a special visit to the original tree in June, when the fruit was in perfection, specimens in a perfect state of maturity.

We are, therefore, able to give an accurate outline and description of this new variety, and to assure our readers, at the same time, that it is undoubtedly, with the exception of Downer's Late, the finest American Cherry that we have yet tasted.

Its merits appear to be, first, earliness—the season of its maturity being just before that of the Black Tartarian; second, unusual beauty of appearance and delicacy of flavor; third, great hardiness and productiveness.

The growth of the tree, and the flavor of the fruit, place it in the class of *Heart* cherries; but the fruit is, in appearance, something between Belle de Choisy and Downer's Late—rather larger than either, and with much of the beautiful semi-translucent appearance of the former. It is more thrifty and productive than the Belle de Choisy, and we learn from those who have observed the original tree in bearing for several years, that its fruit continues ripening gradually for a rather longer period than is usual with other varieties. The tree is of thrifty upright growth, and forms a head much like that of Downer's Late.

The name was given it by Mr. CURTIS

Coe, of Middletown, Connecticut, who planted the seed from which it sprung, and in whose garden the original tree stands. As Mr. Coe never parted with any trees or grafts of this variety until last year, he is still chiefly its possessor; but as he has now a large quantity of thrifty young trees in his grounds, we presume it will soon get into the hands of nurserymen generally, and be offered at a moderate price. It is undoubtedly a most valuable acquisition, and will, we think, take its place among the ten finest cherries known.

Fruit, of medium size, remarkably round and regular in form, considerably resembling that of a duke cherry. Skin thin, wax-like, of a very delicate, pale amber, nearly covered with pale cornelian red in the sun, and marked with delicate pale spots or blotches, which give it an unique appearance. Stalk rather short, set in a depression of moderate depth. Flesh very tender, melting and juicy, with a delicate but sweet and excellent flavor. Ripens early in June, between Early White Heart and Black Tartarian.

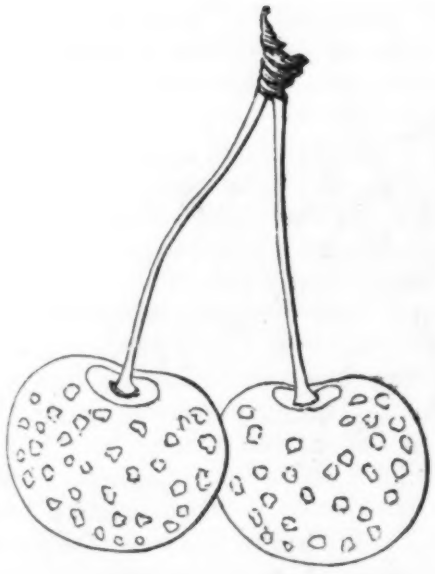

Fig. 11. *Coe's Transparent Cherry.*

HALF A DOZEN RARE HERBACEOUS PLANTS.

BY AN AMATEUR, NEW-YORK.

Mr. Downing—I see but little space in the Horticulturist devoted to hardy popular border flowers—perennials that require less care than any other flowering plants, and that are not inferior to any in beauty and real value in the parterre.

I send you notes of six sorts cultivated among many others in my collection, which though not all new, are yet quite rare in most gardens, and deserve to be much more widely known than they are at present.

I. GLANDULAR COLUMBINE.

Aquilegia glandulosa.

This unique and beautiful new Columbine stood out all last winter without protection, and bloomed finely this season. Its flowers are large, parti-colored blue and white, and at a distance, do not look much unlike those of the old blue and white Passion Flower. It is a decided acquisition, and will no doubt prove a very hardy and permanent border flower.

II. VAN HOUTTE'S PHLOX.

Phlox Van Houttii.

This variety, quite recently sent out by M. Van Houtte, the celebrated nurseryman at Ghent, is a very striking and beautiful species, and eclipses every thing else in this favorite old genus. Its flowers are white, distinctly and boldly striped with bright purple, forming one of the prettiest examples of floral variegation that I know. The plant grows with ease in any good flower border, and produces large and fine panicles of blossoms in June and July. Planted in beds, and the shoots pegged

Fig. 12. *Van Houtte's Phlox.*

down, it has a lively and beautiful effect, and continues flowering for two or three months.

III. SIEBOLDT'S SEDUM.
(*Sedum Sieboldtii.*)

One of the many pretty plants brought by Dr. Von Siebold, from Japan. It is quite dwarfish in habit, forming a neat little bush-like plant, with stems all radiating from one centre, and thick pale silvery gray leaves; perfectly hardy, and will grow from any little bit stuck into the soil. Its bright pink clusters of flowers appear in October, at the end of every shoot, and last till the frosts of November destroy everything besides it. It gives quite a cheerful appearance to the garden, when nearly all else is frosted and dreary.

IV. CORONET LYCHNIS.
(*Lychnis Coronata.*)

Although this species was brought from China, by Tournefort, seventy years ago, still it is very seldom seen in our gardens. Certainly it is the most beautiful of all Lychnises. Its large blossoms are of the finest pure orange color, and I have some in bloom in my garden, while I write, that are of the size of a half-dollar. I believe there is a notion prevalent still, that it is a greenhouse plant, as I see it occasionally feebly grown in pots. I find it perfectly hardy, with the trifling care of turning an empty flower pot over the roots in November to keep out excess of wet in winter. In deep soil, and a rather *shady* border, it will grow near two feet high, and bloom most of the summer.

V. LARGE PODDED EVENING PRIMROSE.
(*Œnothera macrocarpa.*)

This is, to my taste, the finest of all the Œnotheras. The flowers are very large, and are produced for a long time in succession. Besides this, the plant has a good habit; the stems being prostrate, it forms an excellent bed or mass, and is quite ornamental. Though an American plant, it is very seldom to be found in our collections, while the inferior species are seen in every garden.

LONG-FLOWERED LILY.
(*Lilium longiflorum.**)

Remarkable for the size and beauty of its pure white flowers, which are twice as long as those of the common white Lily, though the plant only grows from one to two feet high. It should be replanted every two or three years, as it forms its new bulbs upon

* *L. Japonicum*, of some.

the top of the old one, so that a root originally planted four inches deep, gradually approaches the surface till it is almost bare. Owing to this, it is often destroyed by the winter. To make sure against this, the better way is to protect it by throwing a couple of shovelfuls of soil over the root in the autumn, and removing in the spring.

I obtained all the foregoing species from Mr. Hogg, of New-York, who pays especial attention to the culture of this class of plants.*

Yours, respectfully,

An Amateur.

New-York, July 9, 1847.

* [Mr. Hogg's collection of *herbaceous plants* is one of the largest and best in the country.—Ed.]

PHYSIOLOGICAL EFFECTS OF SEVERE FROST ON TREES.

Translated for this Journal, by Dr. A. GERALD HULL, Newburgh, N. Y.

Since the establishment of the Royal Society of Horticulture, at Paris, there have been received and published many facts exhibiting the disastrous effects of intense cold on vegetation; but these have not been explained by the Society, or, rather, have been attributed, according to the generally received opinion, to an unusual dilatation of the tissues dependent on the congelation of the liquids contained in these same tissues, on the principle that a piece of ice occupies a greater space than the liquid which forms it. This view of the subject compels us to admit that there are some tissues much more dilatable than others; otherwise we could not explain why the common *House-Leek*, a very watery plant that grows on our thatched cottages, resists the most vigorous winters, while other plants, of a less succulent tissue, perish. We believe, and with much reason, that the physical constitution of every vegetable is such that it can sustain a given amount of cold, but that there is no mode of discovering, *a priori*, this property in the tissue. Experience alone can teach us.

M. Charles Morren, Professor of Botany in the University of Liege, having made observations on the effects of the winter of 1837–8, and relying on the one base, that sap is not pure water, and on the other, that water, which is not pure, does not freeze as readily as that which is pure, has reached conclusions which are calculated to modify the manner of estimating the cause of destruction to plants during severe winters.

M. Morren, having presented his conclusions, under the form of ten aphorisms, I transcribe them here, as they were published in the *Echo du Monde Savant*, on the 27th of March, 1839.

1. No organ of plants is rent by the action of cold, except in a few rare cases, where the cavities of the cellular tissue yield to the effect of the dilatation of the liquid.

2. The organs contained in the cells or vessels,* do not undergo any change; the fecula, perhaps, excepted under some circumstances, when changed into sugar, doubtless through the agency of an acid, derived from the decomposition of the organic parts.

3. The intercellular passages (les biforines,) do not cease, after freezing, to eject their *raphides*, (minute crystals found in certain living plants—*Trans.*) and thus it is probable that this movement is not due to a vital contractility.

* Come l'endochrome, le nucleus, le fibre, la fecula, les raphides, et les cristeaux.

4. The action of freezing affects each individual organ in such a manner that there are as many separate pieces of ice as there are aquiferous organs. Every one of these organs thence undergoes a dilatation which, in the mean time, never proceeds to the extent of fracture.

5. This dilatation depends, in a great measure, on the separation of air contained in the water. Thus, frozen water, which burst an iron cannon of a finger's thickness, according to the experience of Biot, and shattered the copper globe of the philosophers of Florence, by a force of 27,720 pounds, produces no fracture of a vegetable cell, formed by a membrane of immeasurable delicacy.

6. The system of Dr. HAUY, which maintains that water, in a state of congelation, kills plants, because it compresses their collars and attacks their roots, ought to be rejected; also his hypothesis that, during freezing, the fibres are contracted, and the organs rent by the dilatation of the sap.

7. It is to be inferred, since the sap, proper juice, fluid of the cells, and, finally, all the menstrua which are found in the organs of plants, are not formed of pure and liquid water, that vegetables, on that account, resist congelation within certain limits, as the experiments of BLAGDEN have demonstrated that the materials which affect the purity of the water, allow the liquid to attain uncongealed, a degree of cold otherwise sufficient to freeze it.

8. The extrication of air from water during the process of freezing, exerts the most hurtful influence on the life of plants; it introduces air into organs which are not designed to elaborate it; and this separation of air is the first advance toward the decomposition of the sap and the materials it precipitates, so that during a thaw a chemical action begins by killing the plant.

9. The distention, thus developed by the contents of the cells and aquiferous organs, eliminates the air on thawing, and, because the air is not controlled by the liquid, throws a large quantity of the latter into the air cavities and vessels; so that the apparatus designed to contain liquids, contains water and air, while that naturally intended as a vehicle for air conveys water. The physiological relations are changed, and the organization cannot sustain such mutations with impunity.

10. Thus, if frozen plants be not deprived of life, by the decomposition of their juices, the loss of excitability or chemical disturbance of all their parts, they are destroyed by the perversion alone of their functions.

[We publish the foregoing as an interesting contribution to this obscure part of vegetable physiology, to which the French and Germans have paid more attention than the English. In this country, where certain disastrous forms of winter-blight are prevalent among fruit trees, the whole nature and effects of congelation become highly interesting.

There appear to us, however, to be objections to some of M. MORREN'S aphorisms, which we are able, at the present moment, only to indicate, with the hope of returning to the subject more fully hereafter.

In the first place, the usual opinion that the injurious effects of freezing on trees is a *mechanical* one, bursting the sap-vessels, etc., owes its weight to every-day observations. Every one familiar with country life in the Northern States, knows, for instance, that severe cold has the effect occasionally of rending the entire trunks of large trees with a loud noise like the report of a cannon. It scarcely seems possible that this could take place without also "rending the organs" of the trees.

In the second place, if the sole injury to plants, of severe freezing, were that of extricating the air, which indeed always takes place in the act of freezing, all plants exposed to a greater degree of frost than their structure naturally enables them to bear, would as inevitably die as the freezing took place. But this, it is well known, is not the fact. On the contrary, a given plant, that will not bear, under ordinary circumstances, to be exposed to a temperature even a few degrees below the freezing point, may be subjected to a temperature within a few degrees of zero, provided it is frozen gradually, and kept in the dark, and very gradually thawed. Does not this go to prove that it is rather to the mechanical disturbance, distention, fracture, etc., caused in the sap vessels by *sudden freezing and thawing*, than by any chemical change brought about by the expulsion of the air from the juices of the plant in freezing, that we must attribute fatal effects—since this separation of air must necessarily occur whenever freezing takes place, whether ice crystals are formed slowly or rapidly?

That half-hardy plants, however, that appear partially injured at first, do often die from the chemical change effected in their juices by frost, can scarcely be denied. But this does not appear to us to be the only way, or indeed the usual one, by which the death of trees is caused by frost.

M. MORREN's aphorism that the less watery, or, in other words, the more elaborated is the sap of plants, the less liable are they to be injured by freezing, is one that is not only well established, but most interesting practically to cultivators: since it teaches them to prevent, in half-hardy trees, (either by planting them on high and dry soil, or otherwise checking over-luxuriance by root-pruning,) all growth late in the season. Early growth, well elaborated juices, and thoroughly ripened wood, are the best safeguards yet known, against the injurious effects of freezing, on particularly tender trees.—ED.]

HOW TO MANAGE THE MANURE HEAP.

BY PROFESSOR LINDLEY, OF THE UNIVERSITY OF LONDON.

No one, who has been watching the progress of agriculture for the last few years, can for a moment dispute the importance of the foreign substances, which, like nitrate of soda and guano, have been introduced into husbandry. But admitting to the fullest extent, the value of these materials; admiting, too, the utility of some of the artificial manures compounded for sale; we must observe, that it is most absurd for the cultivator to put himself to the expense of purchasing them until he has utterly exhausted all the means which his farm affords him, for nothing, of increasing the fertility of his land. Such substances should be employed *in aid* of ordinary manure, not *instead* of it. The art of farming and market-gardening consists, or should consist, in obtaining the greatest possible amount of food at the smallest possible expense.

Now, it must be obvious, that those manuring substances which are necessarily produced on a farm, are the least expensive of all things; to the careful collection and preparation of them should the good husbandman turn his attention in the first instance; and when all the resources of skill are exhausted upon that preparation, it is

time to look abroad for assistance. Farm yard manure is, therefore, the first object of improvement; and it is to this great end that our remarks upon manures have of late been directed. The man who wastes his farm-yard manure and buys other things, can only be compared to him who should leave his wheat upon the ground, and buys rice or maize to make good his prodigality. We assert, without fear of contradiction, that the farmer does, in the great majority of cases, commit a folly equivalent to this; not indeed, intentionally, but from not knowing better.

It is not, however, merely because of its cheapness, that farm-yard manure is the best of all substances for enriching land, but because it contains such a great variety of substances, among which each crop finds that which it most requires, and in the fittest state for becoming its food. "Fortunately," says Dr. DAUBENY, in one of his excellent agricultural discourses, "we are provided, in the dung of animals, with a species of manure of which the land can never be said to tire, for this simple reason, that it contains within itself not *one* alone, but *all* the ingredients which plants require for their nutrition; and what is perhaps of equal importance, existing too, in that precise condition in which they are most readily taken in and assimilated." No wonder then, that the Royal Agricultural Society of England should have made the subject of farm-yard manure the subject of one of their prizes, and that we should in the meantime be turning our feeble efforts in the same direction.

It must be evident, to those who have considered the subject, that the great points to attend to are, firstly, to reduce the animal and vegetable matter of manure to a decayed state; and secondly, to *keep* everything that results from this decay, whether fluid or solid, or invisible, after it has been obtained. It is of no use to catch the hare, if you do not hold her. The farmer lets his stock trample straw and manure together in the yard, and by degrees it becomes partially rotten; it is then thrown into heaps, and allowed to ferment; and then it is used. The market gardener carts the long stable-litter from town, throws it into a heap, lets it ferment, and then applies it to his land. In both these cases, rain and other fluids wash away one part, which runs to waste; the fermentation drives off another, which disappears in the air; and what is left is, at the most, about half as good as it should be. This cannot be the way to manage manure.

What *should* be done, is something like this: every husbandman should have a place for preparing manure. It should be a trench or ditch, large in proportion to the quantity of manure to be prepared. The bottom and sides should be made firm with clay or any other material that will prevent a waste of the water used in preparing the manure. This trench should fall towards one end; and at that end a hole should be made, (which we will call A,) and well puddled or lined with clay, so as to hold water, into which all the liquid matter that runs from the manure should drain. By the side of the trench should be a pump and well, which might be so contrived as to throw water in a stream all over the manure, when necessary. All things being ready, a quantity of raw manure, consisting as usual, of straw and all sorts of impurities, should be placed in a layer at the bottom of the trench, well watered, and trampled down; by this means it will be enabled to decay faster than if it was dry, for the mass will begin to heat; what wa-

ter the straw cannot suck up, will run into the hole A, out of which it should afterwards be drawn, and poured again over the heap. At the same time that the layer of raw manure is placed on the floor of the trench, there should be scattered among it a quantity of gypsum (plaster of Paris,) if that can be had cheap, or else some powdered green vitriol; then the fluid which drains away will consist of those ingredients or their elements, water, etc. The object of adding such substances, is to prevent the loss of ammonia, an invaluable substance, which flies away from manure, if you let it alone, but which either the gypsum or the green vitriol holds fast, and keeps with themselves in the manure. Gypsum (plaster of Paris) is, in many places, the cheapest material; but the wholesale price of green vitriol is not more than five shillings per one hundred weight in the London market; and probably the material called *salt-cake*, and now worth about three shillings and six-pence per one hundred weight, would answer the same purpose.

When there is a fresh supply of raw manure ready, it should be placed in a layer over the first, mixed with gypsum or green vitriol, or some other "fixer," and well trampled down; then let it be thoroughly watered with the fluid in the hole A, if there is enough there; or with water from the pump, if what has drained into A is not sufficient. Water or drainings should be constantly added to these heaps, for it is of the first importance that the manure should be kept continually moist, in order to hasten its decay. In this manner the manure heap may be increased from time to time, as raw manure accumulates, until it is too high to be conveniently raised farther, or to allow of water or drainings being easily poured over it. By degrees the whole mass will become a soft pasty substance; and when in that condition, will be fit to put upon the land, or to lie by till wanted. In the latter case, however, care must be taken not to allow any of its "goodness" to be wasted out of it again; and reservoirs should be formed at the edge of it, to receive what does run from it, which should be poured over it again, or carried and used elsewhere.

If this plan were merely speculative, we should have nevertheless thought it worth proposing; but it is, in fact, the result of experience. It is essentially the same as that practiced by Mr. SCHATTENMANN, and seems to us the best method of managing the dung-hill that has been yet proposed. It has the great merit of saving everything, of wasting nothing, and of causing no other additional expense than that of the purchase of the gypsum, (which would probably be bought without being thus applied,) or of a boy occasionally to attend to the watering the dung-hills. Although we entertain no sort of doubt of the extreme importance of attending to these suggestions, and of the *ample return* they will make for any expense connected with them, we shall be quite satisfied if any of our readers will try them first in a small way, and then ascertain for themselves the relative effect per load of common farm-yard manure, and manure prepared in this more careful manner.

[We will only add to the foregoing most practical and useful suggestions, that, in our climate, with its great extremes of heat and moisture, it is still better if there is a covering—a rough open shed, or the like, over the manure heap.

Where there is abundance of peat or dry black bog earth at hand, it may be used instead of gypsum, etc., as a "fixer" for

the ammonia. Instead of a sprinkling, it may be applied with the manure in layers of equal, or even double thickness. Saturated with the liquid and the volatile portions of the manure, and its vegetable matter decomposed by the fermentation of the mass, it becomes at least equal in value to the farm-yard manure itself, as commonly used; and thus affords, to many persons, the means of doubling or trebling the bulk and value of their manure heap at trifling cost. —Ed.]

MY EXPERIENCES WITH GUANO.

BY A RETIRED CITIZEN, BALTIMORE.

Dear Sir: Do not suppose that I am about to come forward with another certificate of the unparalleled virtues of the "great fertilizer." I am not in the employ of any of the speculators in the article. I have no desire to tell a large story, and appear before the world as having made the richest soil in the world out of a dry sand hill by top-dressings of the excrement of sea birds. No, indeed. I am a disappointed man; I have tried to make my garden rich, and I have made myself poor indeed, in vegetables!

I know very well what you will say: "You did not understand the matter. You put it on at the wrong time. You used too much. You should have been more cautious." This is all very fine, and may be very true. But pray, how was I to know just how much to apply to every sort of crop? The farming newspapers, the circulars of the dealers, all spoke of it as containing the very elements of life, nutrition itself, for plants of every possible growth. "Ammonia and the phosphates" (I have got as deep as that into the chemicals) "are the food of plants;" and guano, I learned, is rich in ammonia and the phosphates.

You must know, then, that this is the very first season of my dabbling in the soil. The by-gone part of my life has been chiefly spent among brick walls and flagstones. If the result of my experiences for the first five months, (I began this spring,) should lead you to think that *I* am rather *green*—so-so verdant—I beg to assure you that my garden is *not* so. There are melancholly gaps in all my beds. My transplanted trees have most of them assumed the appearance of what my neighbor, a botanist who dries plants, keeps in his "hortus *siccus*." And—but I will transcribe from my diary.

April 2d, planted four beds of beets, (*a*.) Had the ground covered with a tolerable sprinkling of guano. This was well dug under, and sowed with "Early Turnep, Blood Beet" and "Early Scarcity." Planted, also, a long bed (*b*) of White Onions. "Onions like a very rich soil." Have given this patch accordingly another light coat of guano over the surface, while raking the bed; and then planted in drills.

[*Mem.*—Only about one-fourth of the beets in the beds (*a*) came up, and these very slowly. Afterwards, my man "John" planted some of the same seed in another part of the garden, of which, I firmly believe, every one grew. Onions in (*b*) still worse, not one in fifty seeds grew, and these gradually died out as if burnt. Have sowed

this same bed over three times, the last time all went well. Suppose the guano has spent its virtues a little in the soil.]

April 10th. Soaked some peas twelve hours in guano water, in order to try how much start it would give them; planted them in rows, and put in at the same time every other row without soaking.

[*Mem.*—Very few of the "soaked," vegetated. About one in four or five grew finally; of those let alone, all grew and bore well.]

April 12th. Transplanted some tomatoes and egg plants to-day. Not meaning to over-do the thing this time, I gave the lightest possible sprinkling of the "pulverized Peruvian" to the hills, where I put them out, and turned it in well with the trowel before transplanting them.

[These struggled hard; but two-thirds of them finally gave up the ghost. On asking my neighbor Smith since, if tomatoes are not hard to transplant, he smiled and said, "it is as easy for them to grow as it is for a Yankee to whittle." It must have been that admirable fertilizer, thought I, though I said nothing to my neighbor Smith.]

April 15th. Planted Lima beans. Here I think is something that will certainly stand fire. Here is a seed that will be able to take up "ammonia and the phosphates," and turn them into "greens" without delay. Accordingly, I have planted one-half my hills of Limas with a tolerable dusting of the fertilizer right under the seeds—intending that as soon as they began to "send out circulars," they shall feel the stimulus that I have given them.

[*Mem.*—Sorry to be obliged to say that only a few, a very few, of these beans have sprouted. To be sure, such as have sprouted, look green and thrifty. What can be the matter of the rest, I dont well see, unless they had an over-dose. On digging up those that would'nt come up, I found them quite rotten. The other half that I planted with common manure in the hills, came up in a few days, every bean of them, and have done finely.]

April 19th. Made a rosery, and being a little nervous about "ammonia," used some old barn-yard manure. Thought, however, that I would not give up without a fair trial, and put out a half dozen roots of the "Four seasons" Rose, with a couple of handfuls of guano mingled with the soil. [The weather set in pretty dry for a fortnight after, and these half a dozen of plants, though they are still green, have not started a leaf yet! The others have grown pretty well, and many of them have given me some handsome well-blown roses.]

I will not trouble you with farther extracts, as on turning over the leaves, I find during the months of April and May, pretty much the same running account. I dont know, indeed, as I have in "all my trials" succeeded with a single experiment, except with my grass-plot. This I gave a good top-dressing very early in April, and it has been extraordinarily green and luxuriant ever since. Indeed, as it was not scattered over it very evenly at first, it made spots and streaks of green so markedly visible, that I was obliged to go over the neglected parts again, to make the whole one uniform pattern.

I have pretty much struck a balance with guano in my own mind. It may all be very well for those who know how to use it, but I am decidedly of opinion that it is dangerous for beginners like me to meddle with. It has put back some of my "truck," and quite destroyed others, and I find on

looking into my neighbors' gardens, who have not had a pound of it, that their crops are all sound and regular, and their advice to me is to stick to the old-fashioned manure.

What I think ought to be done in a journal so much read and referred to, as I suppose yours is, is to say a few words to let those who are ignorant, and have had no practice like myself, know something about guano *besides* its "wonderful virtues." Let them know, for instance, that it is *absolute poison* to *seeds*, if sown along with them, and to roots of everything *transplanted* that it comes in contact with. My own opinion is, that unless "homeopathic doses" of it are administered to most plants, that it burns them up in a dry time like a conflagration. There has been enough said in its favor. Let the "sufferer by fire," now be heard. I am, dear sir, yours, with respect, J. S.

Baltimore, July 12, 1847.

P. S. My darkey "John," says he "berry glad massa got sick of de *pottecary manure;* worse dan ole Scotch snuff."

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Remarks.—Our correspondent's experience is indeed melancholy, but not more so than that of many others, both farmers and gardeners, whose experiments we saw the first season after the introduction of guano. It was then applied "liberally," in proportion to what the cultivator felt that he could afford to put upon his land, or what he hoped to get from it. The consequence was that we saw whole fields of potatoes and onions half destroyed by it.

The truth is, guano can never be applied safely alone, or in a pure state. It should be mixed with a much larger bulk of earth than is generally supposed necessary, to render it safe to apply it directly to any plants, and we think almost its whole value in this climate is lost, if the season is not a *moist* one.

There is no form in which guano is applied with results so uniformly good, as in a *liquid* form. One pound to ten gallons of water is a sufficient quantity, and the effects of a frequently repeated watering with this, are surprisingly beneficial, as our correspondent has with his mode of operation, found them to be injurious. Hence, those whose use of guano has been confined chiefly to green-house plants, or a few choice trees and shrubs, which they have regularly watered with it, are as loud in its praise, as those who have used it mainly in field crops, and perhaps with the disadvantage of dry seasons, are lukewarm. —Ed.

THE HYDRAULIC RAM.

We have lately had our attention drawn to that most valuable self-acting water machine, called the *Hydraulic Ram;* and as it is comparatively little known in the United States, we think some account of it cannot but interest many of our readers.

The three conditions most essential to the growth of vegetation, as every one knows, are light, heat and water. There is no scarcity, in most parts of the United States, of warmth and sunshine, during the growing season. But there is often very serious difficulty in producing many garden crops, and maintaining ornamental grounds in the highest condition, from the dryness of our climate in midsummer. Any means, therefore, of avoiding the mischievous effects of summer drouth will,

we think, be hailed as a real blessing to the Horticulturist. Such a desideratum, for many localities, is the Hydraulic Ram. Wherever a small constant stream of water, or even a spring with a very moderate regular overflow, can be found, within any moderate distance of the grounds to be irrigated, a plentiful supply of water may be furnished without any farther cost or expenditure of power than what is involved in the purchase and erection of the machine itself. A stream or spring in a deep valley, or a brook at two or three hundred feet distant, may thus be made to force itself up-hill to any desired point, where a pond, cistern or reservoir may be found most convenient.

From such reservoir the water may be led to any lower part of the grounds—a complete irrigation maintained wherever it is needful. Thus, lawns may be kept as fresh as emerald, and beds of vegetables and flowering plants grown with a luxuriance and perfection rarely seen in our climate.

Where the source affords an abundant supply of water, fountains may be kept playing by the same means, and it is surprising how much beauty and value may be conferred on pleasure grounds by the addition of as much water as will be supplied by a good Hydraulic Ram fed by a small but unfailing rivulet of water.

The construction of the Hydraulic Ram is at once simple and ingenious. We extract the following highly interesting detailed account of the invention, from *Ewbank's Hydraulics:*

Every person accustomed to draw water from pipes that are supplied from very elevated sources, must have observed, when the cocks or discharging orifices are suddenly closed, a jar or tremor communicated to the pipes, and a snapping sound like that from smart blows of a hammer. These effects are produced by blows which the ends of the pipes receive from the water; the liquid particles in contact with the plug of a cock, when it is turned to stop the discharge, being forcibly driven up against it by those constituting the moving mass behind. The philosophical instrument named a *water hammer* illustrates this fact. The effect is much the same as if a solid rod moved with the same velocity as the water through the tube until its progress was stopped in the same manner, except that its momentum would be concentrated on that point of the pipe against which it struck, whereas with the liquid rod the momentum would be communicated equally to, and might be transmitted from *any* part of, the lower end of the tube; hence it often occurs that the ends of such pipes, when made of lead, are swelled greatly beyond their original dimensions. We have seen some 3-4 of an inch bore, become enlarged to 1 1-4 inches before they were ruptured. At a hospital in Bristol, England, a plumber was employed to convey water through a leaden pipe from a cistern in one of the upper stories to the kitchen below, and it happened that the lower end of the tube was burst nearly every time the cock was used. After several attempts to remedy the evil, it was determined to solder one end of a smaller pipe immediately behind the cock, and to carry the other end to as high a level as the water in the cistern; and now it was found that on shutting the cock the pipe did not burst as before, but a jet of considerable height was forced from the upper end of this new pipe: it therefore became necessary to increase its height to prevent the water escaping from it—upon which it was continued to the top of the hospital, being twice the height of the supplying cistern, but where to the great surprise of those who constructed the work, some water still issued: a cistern was therefore placed to receive this water, which was found very convenient, since it was thus raised to the highest floors of the building without any extra labor. Here circumstances led the workmen to the construction of a water-ram without knowing that such a machine had been previously devised.

The first person who is known to have raised water by a ram, designed for the purpose, was Mr. Whitehurst, a watchmaker of Derby, in England. He erected a machine similar to the one represented by the next figure, in 1772. A description of it was forwarded by him to the Royal Society, and published in vol. lv., of their Transactions.

Fig. 13. *Whitehurst's Water-Ram.*

A, represents the spring or reservoir, the surface of the water in which was of about the same level as the bottom of the cistern B. The main pipe from A to the cock at the end of C, was nearly six hundred feet in length, and one and a half inches bore. The cock was sixteen feet below A, and furnished water for the kitchen offices, &c. When it was opened the liquid column in A C was put in motion, and acquired the velocity due to a fall of sixteen feet; and as soon as the cock was shut, the momentum of this long column opened the valve, upon which part of the water rushed into the air-vessel and up the vertical pipe into B. This effect took place every time the cock was used, and as water was drawn from it at short intervals for household purposes, "from morning till night—all the days in the year," an abundance was raised into B, without any exertion or expense.

Such was the first water-ram. As an original device, it is highly honorable to the sagacity and ingenuity of its author; and the introduction of an air vessel, without which all apparatus of the kind could never be made durable, strengthens his claims upon our regard. In this machine he has shown that the mere act of drawing water from long tubes for ordinary purposes, may serve to raise a portion of their contents to a higher level; an object that does not appear to have been previously attempted, or even thought of. The device also exhibits another mode, besides that by pressure engines, of deriving motive force from liquids thus drawn, and consequently opens another way by which the immense power expended in raising water for the supply of cities, may again be given out with the liquid from the lateral pipes. Notwithstanding the advantages derived from such an apparatus, under circumstances similar to those indicated by the figure, it does not appear to have elicited the attention of engineers, nor does Whitehurst himself seem to have been aware of its adaptation as a substitute for forcing pumps, in locations where the water drawn from the cock was not required, or could not be used. Had he pursued the subject, it is probable the idea of opening and closing the cock (by means of the water that escaped) with some such apparatus as figured in No. 160, would have occurred to him, and then his machine being made self-acting, would have been applicable in a thousand locations. But these additions were not made, and the consequence was, that the invention was neglected, and but for the one next to be described, it would most likely have passed into oblivion, like the steam machines of Branca, Kircher, and Decaus, till called forth by the application of the same principle in more recent devices.

Whenever we peruse accounts of the labors of ingenious men, in search of new discoveries in science or the arts, sympathy leads us to rejoice at their success and to grieve at their failure: like the readers of

a well written novel who enter into the views, feelings and hopes of the hero; realize his disappointments, partake of his pleasures, and become interested in his fate; hence something like regret comes over us, when an industrious experimenter, led by his researches to the verge of an important discovery, is, by some circumstance diverted (perhaps temporarily) from it; and a more fortunate or more sagacious rival steps in and bears off the prize from his grasp—a prize, which a few steps more would have put him in possession of. Thus Whitehurst with the water-ram, like Papin with the steam-engine, discontinued his researches at the most interesting point—at the very turning of the tide that would have carried him to the goal; and hence the fruit of both their labors has contributed but to enhance the glory of their successors.

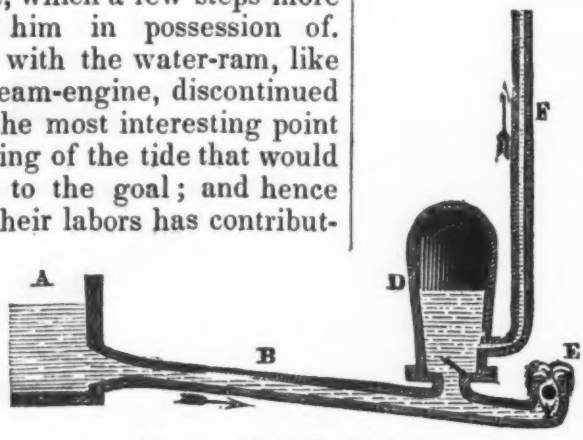

Fig. 14. *Montgolfier's Ram.*

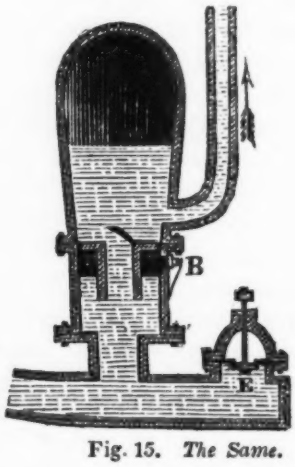

Fig. 15. *The Same.*

The *Bèlier hydraulique* of Montgolfier was invented in 1796. (Its author was a French paper maker, and the same gentleman who, in conjunction with his brother, invented balloons in 1782.) Although it is on the principle of Whitehurst's machine, its invention is believed to have been entirely independent of the latter. But if it were even admitted that Montgolfier was acquainted with what Whitehurst had done, still he has, by his improvements, made the ram entirely his own. He found it a comparatively useless device, and he rendered it one of the most efficient—it was neglected or forgotten, and he not only revived it, but gave it a permanent place among hydraulic machines, and actually made it the most interesting of them all. It was, previous to this time, but an embryo; when, like another Prometheus, he not only wrought it into shape and beauty, but imparted to it, as it were, a principle of life, that rendered its movements *self-acting;* for it requires neither the attendance of man, nor anything else, to keep it in play, but the momentum of the water it is employed to elevate. Like the organization of animal life, and the mechanism by which the blood circulates, the pulsations of this admirable machine incessantly continue day and night, for months and years; while nothing but a deficiency of the liquid, or defects in the apparatus can induce it to stop. It is, compared to Whitehurst's, what the steam-engine of Watt is to that of Savary or Newcomen.

Fig. 14 represents a simple form of Montgolfier's ram. The motive column descends from a spring or brook A through the pipe B, near the end of which an air chamber D, and rising main F, are attached to it as shown in the cut. At the extreme end of B, the orifice is opened and closed by a valve E, instead of the cock in fig. 13. This valve opens downwards and may either be a spherical one as in fig. 14, or a common spindle one as in fig. 15. It is the play of this valve that renders the machine self-acting. To accomplish this, the valve is made of, or loaded with, such a weight as just to open when the water in B is at rest; *i. e.* it must be so heavy as to overcome the pressure against its under side when closed, as represented at fig. 15. Now suppose this valve open as in fig. 14, the water flowing through B soon acquires an additional force that carries up the valve against its seat; then, as in shutting the cock of Whitehurst's machine, a portion of the water will enter and rise in F, the valve of the air chamber preventing its return. When this has taken place, the water in B has been brought to

rest, and as in that state its pressure is insufficient to sustain the weight of the valve, E opens; (descends) the water in B is again put in motion, and again it closes E as before, when another portion is driven into the air vessel and pipe F; and thus the operation is continued, as long as the spring affords a sufficient supply and the apparatus remains in order.

The surface of the water in the spring or source should always be kept at the same elevation, so that its pressure against the valve E may always be uniform—otherwise the weight of E would have to be altered as the surface of the spring rose and fell.

This beautiful machine may be adapted to numerous locations in every country. When the perpendicular fall from the spring to the valve E is but a few feet, and the water is required to be raised to a considerable height through F, then, the *length* of the ram or pipe B, must be increased, and to such an extent that the water in it is not forced back into the spring when E closes, which will always be the case if B is not of sufficient length. Mr. Millington, who erected several in England, justly observes that a very insignificant pressing column is capable of raising a very high ascending one, so that a sufficient fall of water may be obtained in almost every running brook, by damming the upper end to produce the reservoir, and carrying the pipe down the natural channel of the stream until a sufficient fall is obtained. In this way a ram has been made to raise one hundred hogsheads of water in twenty-four hours, to a perpendicular height of one hundred and thirty-four feet, by a fall of only four feet and a half. M. Fischer of Schaffhausen, constructed a water-ram in the form of a beautiful antique altar, nearly in the style of that of Esculapius, as represented in various engravings. A basin about six inches in depth, and from eighteen to twenty inches in diameter, received the water that formed the motive column. This water flowed through pipes three inches in diameter that descended in a spiral form into the base of the altar; on the valve opening a third of the water escaped, and the rest was forced up to a castle several hundred feet above the level of the Rhine.

A long tube laid along the edge of a rapid river, as the Niagara above the falls, or the Mississippi, might thus be used instead of pumps, water-wheels, steam-engines and horses, to raise the water over the highest banks and supply inland towns, however elevated their location might be; and there is scarcely a farmer in the land but who might, in the absence of other sources, furnish his dwelling and barns with water in the same way, from a brook, creek, rivulet or pond.

If a ram of large dimensions, and made like fig. 14, be used to raise water to a great elevation, it would be subject to an inconvenience that would soon destroy the beneficial effects of the air chamber. When speaking of the air vessels of fire-engines, in the third book, we observed that if air be subjected to great pressure in contact with water, it in time becomes incorporated with or absorbed by the latter. As might be supposed, the same thing occurs in water-rams; as these, when used, are incessantly at work both day and night. To remedy this, Montgolfier ingeniously adapted a very small valve (opening inwards) to the pipe beneath the air chamber, and which was opened and shut by the ordinary action of the machine. Thus, when the flow of the water through B is suddenly stopped by the valve E, a partial vacuum is produced immediately below the air chamber by the recoil of the water, at which instant the small valve opens and a portion of the air enters and supplies that which the water absorbs. Sometimes this *snifting* valve, as it has been named, is adapted to another chamber immediately below that which forms the reservoir of air, as at B in fig. 15. In small rams a sufficient supply is found to enter at the valve E.

Although air chambers or vessels are not, strictly speaking, constituent elements of water-rams, they are indispensable to the permanent operation of these machines. Without them, the pipes would soon be ruptured by the violent concussion consequent on the sudden stoppage of the efflux of the motive column. They perform a similar part to that of the bags of wool, &c., which the ancients, when besieged, interposed be-

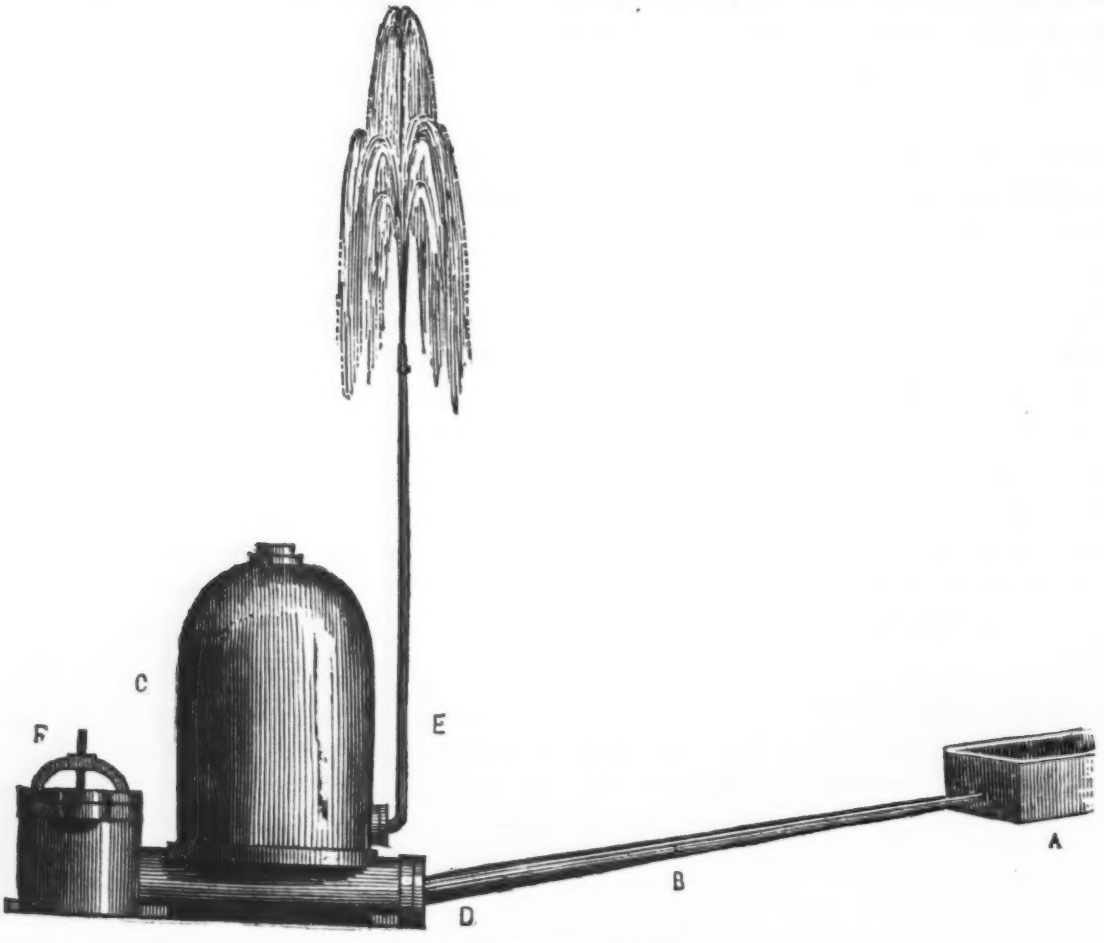

Fig. 16. *Montgolfier's Water Ram.*

tween their walls and the battering rams of the besiegers, in order to break the force of the blows.

The ram has also been used in a few cases to raise water by atmospheric pressure from a lower level, so as to discharge it at the same level with the motive column or even higher.

The device by which Montgolfier made the ram self-acting, is one of the neatest imaginable. It is unique: there never was anything like it in practical hydraulics, or in the whole range of the arts; and its simplicity is equal to its novelty, and useful effects. Perhaps it may be said that he only added a valve to Whitehurst's machine: be it so—but that simple valve instantly changed, as by magic, the whole character of the apparatus—like the mere change of the cap, which transformed the Leech Hakim into Saladin.* And the emotions of Cœur de Lion, upon finding his great adversary had been his physician in disguise, were not more exquisite than those, which an admirer of this department of philosophy experiences, when he contemplates for the first time the metamorphosis of the English machine by the French Savan. The name of Montgolfier will justly be associated with this admirable machine in future ages. When all political and ecclesiastical crusaders are forgotten, and the memories of all who have hewed a passage to notoriety merely by the sword, will be detested—the name of its inventor will be embalmed in the recollections of an admiring posterity.

Montgolfier's water-ram is now manufactured in this country, by Mr. H. M. Birkenbirne, 17 South Eighth-street, Philadelphia. Fig. 16 represents the exterior of the apparatus.

* Walter Scott's Tales of the Crusaders.

We find it is used and much approved now, in some parts of Pennsylvania, for supplying farm-houses, factories, gardens, etc. Its comparatively trifling cost, (not more, in many cases, than that of a well and pump,) as well as its simplicity and effectiveness, must soon make it extensively known to the public.

This machine is now manufactured in Philadelphia, of all sizes, to suit the supply of water at hand. By giving the manufacturer the amount of water which the brook or spring yields, as an overflow per minute, the head or fall that may be procured, and the height and distance to which it is desired to convey the water, the proper ram and pipes can be sent to any part of the country.

Mr. BIRKENBIRNE has one of these rams, which raises water sixty-five feet, with sixteen inches fall. A supply of *half a gallon* of water per minute, is sufficient to drive the smallest sized ram, while the largest made at Philadelphia, requires fifty gallons per minute. Our readers may learn the proportionate cost, when we inform them that a ram calculated to fit a spring with an overflow of six gallons per minute, where a fall of five feet can be obtained, and which will raise twelve hogsheads of water daily, to an elevation fifty feet high, would cost in Philadelphia but eighteen dollars.

The fact that the hydraulic ram is self-acting, and that it works with an amount of water power infinitely less than any other machine, must, we think, as soon as its construction is known, bring it into general use, in this country. There are many places within our knowledge, where the economy it would effect, in giving an abundant supply of water to all parts of the country-house and grounds, would be equal to double its cost in a single year.

REVIEWS.

TRANSACTIONS OF THE NEW-YORK STATE AGRICULTURAL SOCIETY. Vol. VI. 1846. Albany. C. VAN BENTHUYSEN & Co., Public Printers.

THE Transactions of our State Agricultural Society, are printed at the expense of the State, and distributed largely by the members of the Legislature. Five hundred copies are also placed at the disposal of the State Society itself; five hundred in the hands of the American Institute, New-York; and forty copies are given to each county society, for distribution among its members. In this way, the work is placed gratuitously within the reach of all our citizens really interested in the progress of agriculture.

The present volume, compiled under the direction of B. P. JOHNSON, Esq., the present Secretary, comprises 716 pages. Besides the actual business reports of the Society, the reader will find a variety of very interesting essays, by many of the most intelligent farmers and agricultural writers in the State. Among these, we may especially point out those of Mr. RANDALL, on the management of merino sheep; Mr. NOTT, on the wool trade; Mr. GEDDES, on *plank roads;* Mr. HOWARD, on Galloway cattle; Mr. PELL, on the use of lime, and on soiling; Dr. FITCH, on the Hessian fly; Mr. STEVENS, on the Canada thistle, etc.

There are two articles which commend themselves more especially to our notice: one, the report of the committee on Fruits, and the other, the communication of N.

Longworth, Esq., of Cincinnati, on Vineyards.

The Fruit Committee, at the desire of the Society, and considering "the apple orchard an item of national wealth," undertook, several months previously to the annual meeting, to collect and digest opinions necessary to enable them to recommend a select list of *thirty varieties* of apples. They have accordingly published in their report a selection as follows:

"Early Harvest, Early Strawberry, Large Yellow Bough, Early Joe, and William's Favorite, all of which are summer apples."

"Fall Pippin, Golden Sweet, Gravenstein, Jersey Sweeting, Porter, Rambo, Detroit Red, Bellebonne, for autumn use.

"Baldwin, Yellow Bellefleur, Hubbardston Nonsuch, Jonathan, Newtown Pippin, Northern Spy, Blue Pearmain, Rhode Island Greening, American Golden Russet, Roxbury Russet, Swaar, Ladies' Sweeting, Tallman Sweeting, Esopus Spitzenbergh, Vandervere, Waxen Apple, Westfield Seeknofurther, for winter use and exportation."

We extract also the following:

"Any variety of apple, to be worthy of extensive cultivation, should be, as nearly as possible, perfect of its kind. Some are quite so. A positively good apple should possess the following qualifications:

"1st. The wood of the tree should be hardy and vigorous in its growth, spreading in its shape, graceful in its appearance, and an abundant and annual bearer.

"2d. The fruit should be uniformly distributed over the tree, not in clusters, but with a strong stem holding it firmly to the limb, and not subject to fall in ordinary high winds.

"3d. The size should, as near as may be, range from medium, to moderately large; such usually combining higher flavor and sounder quality, than the quite small, or the extraordinarily large varieties. A very small apple is apt to be astringent; a very large one coarse and spongy. The flesh of a perfect apple should be solid, heavy, juicy and brittle [crisp ?]. It should be, also, brisk in its flavor, which should always be agreeable, whether that flavor be tart, sub-acid, or sweet.

"4th. Its shape should be fair, [and we would add, regular,] of agreeable appearance, small in the core, and delicate in the skin.

"Such qualities constitute a perfect apple; and the varieties we have chosen, in the names reported for consideration, mostly possess these qualities in an eminent degree."

All the apples in the committee's list but two, are, we observe, American varieties. They state, indeed, that they consider the favorite region of this fruit "lies between 40° and 44° north; between these ranges flourish probably the best specimens the world has ever produced."

Mr. Longworth's article, though written with but little method, contains a great deal of valuable practical information. To this gentleman's perseverance, we owe the fact that the Ohio river is at the present moment dotted with some hundreds of thriving and productive vineyards, yielding a wholesome light wine, strongly resembling Rhenish, and manufactured mainly of the pure juice of one of our native grapes—the Catawba. There are those who listen with incredulity to the statements of the profit of wine making in this country, and with doubt and distrust at the wisdom of the production of wine itself. We are not of the number. We are confident that vineyards, in the warmer portions of the middle states, will eventually become a profitable investment of the land; and that an abundance of *pure*, cheap, light wines, will ab-

solutely tend to diminish the existing intemperance of the country.

We would be glad to copy Mr. LONGWORTH's article entire, but want of space obliges us to make the following concise abstract of its contents.

Mr. LONGWORTH repeats, what almost every practical cultivator knows, but what no foreigner, and but few others, who have not tried it for themselves, will believe, viz.: that it is entirely useless to attempt to make vineyards of the foreign varieties of the vine. His own experiments of this kind have been made at different times, with 10,000 vines from France, and 5,000 from Madeira—comprising all the most celebrated sorts from the extreme northern parts of France and Germany, as well as those from the warmer wine districts. "I went to the expense," says he, "of trenching soil on a side hill, placing a layer of stone and gravel at the bottom, with a drain to carry off the water, and put in a compost of rich soil and sand three feet deep, and planted on it a great variety of these foreign wine grapes. All failed: and not a single plant is left in my vineyards." We may add, that the same results attended the experiments of M. LOUBAT, and M. PARMENTIER, skilful French *vignerons*, who made very extensive plantations of French grapes on Long Island.

After this, it is clear enough that it is on native grapes alone that Americans must rely for vineyards. Among all the native sorts, Mr. LONGWORTH prefers the *Catawba*, as being most productive, and as making much the best wine, an opinion in which, both from some experiments of our own, and from samples sent us by this gentleman, we fully coincide. The *Isabella* is only fit for making sweet wine, while the *Catawba* makes both hock and sparkling champagne of excellent quality. The *Alexander's*, or *Schuylkill Muscadel*, (*Cape* grape of some,) makes a good dry wine, resembling Teneriffe. Mr. L. considers it one of the surest bearers. The *Missouri*, he says, bids fair to be a valuable wine grape, and the *Herbemont* would be very valuable, both for the table and for wine, if it were less subject to rot. The Isabella ripens unequally at Cincinnati, and is liable to decay on the vines.

The sites which Mr. LONGWORTH prefers, are the tops and sides of the steep hills on the Ohio, the soil of which is fertile. The north sides being the richest, and the season at Cincinnati being sufficiently warm, fully to ripen the grape there, he prefers the north side to the south. He prepares the land by *terracing*, where it is so steep as to require it—the terraces being held up by ridges of sod. The soil is then trenched from eighteen inches to two feet deep, care being taken not to throw up more than three or four inches of the subsoil, where the latter is stiff loam or clay. If the ground is not so steep as to wash, deep plowing alone is sufficient.

In planting the vines where the ground is level, he arranges them in rows five or six feet apart, the plants being four and a half feet apart in the rows.

The Ohio vineyards are mostly started with cuttings, planted early in the spring. These are set two in each hill, inserted so that the tops approach within two or three inches, though they are widely separated at the lower ends. Two are put in, so as to provide for failures, and one is thus easily removed, without disturbing the other—should both grow.

The second year after the cutting is planted, (really the first year of growth,) the plant is headed down to two or three buds; these are examined as soon as they begin to shoot out, and all but the strong-

est are rubbed off. Little other attention is given this season, except breaking or pinching off, towards the close of summer, the three or four lower lateral shoots, (second growth.)

The following spring, the vines are headed down to four buds. The two strongest of these are permitted to grow, and all the laterals that start out of them, from the ground to three or four feet high, are pinched off.

The next year, (the third of growth,) a small crop of fruit is expected. The strongest branch is now pruned from two to three feet long, according to the growth of the plant, to prepare it for bearing. The other branch is cut back lower, so as to leave but five buds, three only of which, the most vigorous, are allowed to grow—the laterals being taken out as they appear.*

The next year, the whole bearing wood of the previous season is cut out, leaving none of the two year old wood. The other shoots are allowed to bear this year, while new shoots are brought up from the base of the shoot, cut out, to replace the bearing ones next season. In this way—the *renewal* mode—the fruit-spurs are always pushed out from young canes, and all the shoots come out within a foot or eighteen inches of the ground—the vines being trained, as in the greater part of Europe, on single poles, five or six feet high.

In making wine, the grapes are gathered as soon as fully ripe, it being found that over-maturity, though it adds saccharine matter, injures the flavor and aroma of the wine. If red wine is desired, the grapes are mashed and partially fermented before pressing: if a light wine, then they are crushed and pressed at once. Mr. Longworth has no faith in the doctrine, current abroad, that in the quality of wine all depends on soil and exposure, so that the product of one man's vineyard is worth a dollar a bottle, while that of his neighbor is comparatively valueless. With us the quality depends chiefly on the care and attention of the manufacturer. Wine requires much greater skill and care in the manufacture, than cheese or butter, yet one tenant, on a given farm, will make butter of a superior quality, whilst that made perhaps by his successor, on the same farm, and with the same facilities, is scarcely fit for use, and will not command half price in the market. In Europe, it is a standing proverb, that "a poor man cannot make good wine." He is compelled to sell his wine when new, and cannot devote the necessary attention, and wait till it attains sufficient age to bring out its character.

The Ohio wines command a ready sale in Cincinnati, at prices from $1 to $1.50 per gallon. Mr. Longworth gives it as the result of thirty years experience, that the average full crop per acre there is 200 gallons. His vintage last year was 300 barrels, less by 200 barrels than was anticipated, owing to a partial failure in the crop. Formerly he used to add, before fermentation, from six to ten ounces of sugar to the gallon of juice, of the Catawba grape. But the practice now, when the grapes are well ripened, is, to add neither sugar nor spirit.

Mr. Longworth's success in vineyard culture, is partly owing to his sagacity and generosity in employing poor, hardworking German families, familiar with the culture of the grape, but having no means. Mr. L. started these poor emigrants, by furnishing the land, the grape cuttings, and the small outfit necessary in the beginning. In return, he receives half the wine, at the press, and half the amount of any fruit sold. Most of his tenants have occupied

* "In breaking out the lateral shoots, it should not be done till after the wood begins to ripen. If done too soon, it forces out the fruit buds of the next year."

their little vineyards from ten to twenty-five years, and are "contented and happy, if not rich." One of them, who works harder than any of the others, and keeps his family at work, and devotes most of his time to the vineyard, made from his wine last year $1.400.

"The day is not distant," says Mr. LONGWORTH, "when the banks of the Ohio will rival the banks of the Rhine, in the quality and quantity of the wine produced. Our German emigrants are the people who will accomplish it. Our hills, suitable for wine, are of little value for other cultivation. Give a German ten acres of this land, and, if he has a wife and children, he will live in great luxury. He will never want for his two greatest of all luxuries, *wine* and *sour-crout*. His children, however small, not only aid him in the cultivation, but his wife, during the summer and fall, does the greater part of the labor in the vineyard. The poor vine-dressers in Germany, are seldom so rich as to own a horse, and therefore over-estimate their value. Yet, greatly as they value the acquisition of a broken-down pony in this country, it does not lessen their estimation of the great value of their wives in the vineyards. A very honest Dutch tenant of mine, who was so unfortunate as to lose his wife, observed to me, 'he might just as well have lost his horse!'"

FOREIGN NOTICES.

HORTICULTURAL SATIRE.—M. ALPHONSE KARR, one of the most racy and piquant of the French writers of the day, has printed the following jeu d' esprit, aimed at certain classes of devotees in general science no less than horticulture, who, by continually fixing their attention upon the minutiæ of their favorite pursuits, seem to lose the capacity for enjoying or understanding all else that is interesting in the universe. We translate from the *Journal d'Agriculture pratique.*

Société des Amateurs des Concombres.—A new horticultural society is about being formed in England. The members of this society have remarked that the mind of man is too narrow to embrace a sufficient admiration of the works of the Creator; they have observed that many have already had an instinct of this truth; that horticulturists, for example, have no estimation of insects; that entomologists pride themselves upon being almost ignorant that there are flowers; that among horticulturists themselves, some love nothing but tulips; and that among amateurs there are some who have no regard for any tulips but those with white grounds, and indeed among tulips with white grounds only value those varieties which form a part of their own collection. In this way, by consecrating their whole life and all their faculties to the study and the admiration of a single flower, they are able at last sufficiently to admire and appreciate it!

The new society in question aims to apply this division of mental labor to vegetables. It will devote itself to *Cucumbers*, and will take the title of the "*Society of Cucumbers*," in the hope of inducing other new societies to consecrate themselves to other species of vegetables. *Alphonse Karr.*

FLORAL EMBELLISHMENTS FOR FARM-HOUSES.—Talk not to me of the suburban residences, with their windows decorated with geraniums and heaths, with hyacinths and irises. I would also have the windows of our farm-houses adorned with flowers, not in rusty tin measures, and old black glazed spoutless teapots, and glass bottles with their necks broken off, but in whole and handsome flower pots, or neatly painted wooden boxes, for they really cost little or nothing. I would have the piazzas or porches trellised with vines, even with scarlet runners, if nothing else could be had. I would have the door-yard filled with flowers and shrubbery, and the roadside lined with trees—here a clump, and there a single line, mingling the varieties as nature mingles them, cultivating them for fruit, and cultivating them also for ornament and beauty; but this is all, you will tell me, for mere appearance sake. Well, I will reply, is appearance nothing? Do you think nothing of appearance when you choose your wives, and nothing of your own appearance when you wish them to confirm the election? But why should the pleasure of sight be so lightly esteemed! Why should they be spoken of in language of disdain or indifference? Are they not as rational, as respectable, as valuable as abundant, and as innocent as the other senses? Are they not, indeed, the very elements of some of the most refined pleasures of the mind and heart? Has God given us the sense of sight, so wonderful, so capacious, so infinitely varied in its resources and objects, for no purpose? Is appearance nothing, even though it be the window of a farm-house? What is more studied than appearance throughout the work of the Creator? What object is there in nature, from the highest to

the lowest, animate or inanimate, swimming in the sea, or in the air, or the surface of the earth, or buried beneath it, which is not, upon examination, found to be as beautiful as if it were finished for no other purpose than to be looked at? Take the shell that lies at the bottom of the ocean, the bird that bathes his wings in heaven's purest light, the flowers that carpet the earth with their varied splendor, the glittering stars that light up the deep arches of the skies with an eternal glory—take the combination of the countless elements of beauty, when the morning slowly lifts up the veil of night, and as at the dawn of the creation, reveals the glories of the visible world; or when spring breathes upon the earth, and recals the dead to life, and myriads and myriads of forms of new things come forth at her voice—take the descending sun as he reclines upon his western throne, and wraps around him the gorgeous robe of unrivalled majesty—take the perfection of beauty as seen in a nearer but more transcendant form in man himself, in his symmetrical stature, in his well turned limbs, in the web of unmelted softness and texture which covers him, in the tints of his complexion, in the grace of his movements, in the melody of his voice, in the eloquence of the eye, pouring out the fires of genius, or radiant with the charms of the affections that speak so powerfully to the soul—and will, then, men say that appearance is nothing, and that the pleasures of the sight are not to be valued and cultivated? I say, that appearance is always to be regarded, and that we cannot render our homes too beautiful and attractive. Home is the paradise of human life, and poor and wretched, indeed, must that creature be who, looking round the habitable world, cannot point to one nook of earth, and say, "There is my home?" Our first object should be to make our homes as convenient and comfortable as we can make them, and our second object should be to render them, to an equal extent, tasteful and elegant. *London Garden. and Florist.*

Analogies in Animals and Plants.—The functions of animals and plants are in a like degree analogous. Animals take in their food by the agency of the mouth, and prepare it for digestion either by various degrees of mastication, or by attrition, as in the gizzards of birds. In this they differ from plants; but these have a sufficient compensation, inasmuch as that they imbibe their food in a fluid form, liquid or aeriform, and consequently in a state already of the finest possible division. Animal and vegetable remains are their common food, and salts of various kinds are their condiments and stimulants; plants having this advantage over animals, that as they absorb only the soluble and finer parts of their nutriments, and their absorbing organs have the power of rejecting that which is offensive, they have no offensive matters to separate, such as appear in the excrements of animals.

In the animal stomach, the food undergoes an extensive change, being reduced to a pulp of greater specific gravity, and being altered entirely both in taste and odor. In the sap vessels of plants, which may be truly considered as their primary organ of digestion, their food or sap undergoes a change precisely similar; its colour and flavor are altered, and its specific gravity increased.

From its stomach, the animal's food passes into the intestines, is there subjected to the action of the bile, and the chyle or nutritive portion separated from that which is excrementitious. In its passage through the intestines, the chyle is absorbed by the lacteal vessels, and conveyed into the blood; and these mingled liquids are propelled by the heart into the lungs; to be there exposed to the action of the air. The vital liquid now changes its purple hue to a florid red, loses a portion of its carbon and watery particles, the former combining with the oxygen of the atmospheric air in the lungs, and being breathed forth in the form of carbonic acid gas. As plants take in as food no gross unneeded ingredients, it is obvious that no process like the biliary operation is required in their course of digestion. But in them the food or sap, proceeding at once along the branches, is poured into the leaves, which are the very lungs of the vegetable world. Here, as is the blood, its colour is changed, and oxygen emitted from it during the light hours of the twenty-four; but carbonic acid is breathed forth during the night, and at all periods, a considerable amount of watery vapor is emitted.

From the lungs, by the agency of the heart, the blood is propelled through the arteries over the whole animal frame, supplying nourishment and warmth to all the parts, and where, by those being abstracted, it is again converted into purple or venous blood, and is returned by the veins to undergo a repetition of those changes already noted as being effected in the lungs. In plants, the sap, after exposure to the action of the air in their leaves, is returned by another set of vessels, situated in the bark, ministering to the growth and support of the whole plant. It is true, that only under certain circumstances, detailed in another chapter, is heat evolved during the processes of vegetation; but the circulation of the sap in plants, beyond all doubt, enables them to resist the frosts, the most intense and prolonged, we find the interior of trees remain unfrozen; and under the meridian sun of the tropics, the sap of the palm and all other trees retains a temperate coolness. This power to resist extremely elevated and depressed temperatures is characteristic of all animated nature.

Such is the close similarity in the digestive and circulatory processes characterising the members of the two great kingdoms of organised nature, a resemblance which obtains in all the other functions enjoyed by them in common. During respiration, the air inhaled by animals through the mouth and nostrils, proceeds immediately to the lungs, and acts upon the blood; in plants, the air inhaled by their leaves operates instantaneously upon the sap. The changes which occur have been detailed in previous pages, and there it has been shown, that as oxygen is the vital air of animals, so that gas and carbonic acid gas are equally essential to plants. If animals be placed in a situation where they inhale pure oxygen, their functions are highly excited and increased in rapidity; but it is an exhilaration speedily terminating in exhaustion and death, if the inhalation be continued for a protracted time. So plants will flourish with an increased vigor in atmosphere containing one-twelfth of carbonic acid, but even this brings on premature decay; and if it ex-

ceeds that proportion, destruction is still more rapidly induced. During sleep, animals exhale less carbonic acid than during their waking hours, so plants emit a much diminished amount of oxygen during the night. *Johnson's Principles of Gardening.*

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To destroy Earwigs on the Dahlia.—In light soils the first scourge of the Dahlia is the earwig; this insect increases by myriads, and is very fond, not of the roots, but of the young shoots and flowers of the Dahlia. In vain I used sulphur, tobacco, soot, etc.; every morning the earwigs surrounded the new shoots, and in a few moments all were devoured. I then had collars or bands of tin made, (the use of zinc would be less expensive,) about one inch and three-quarters in breadth, and large enough to form an opening of about the same diameter. I sunk these bands in the ground around the Dahlias, to the depth of about a quarter of an inch, (we know that the earwig does not penetrate very deep below the soil;) I then rubbed the outside of the bands with the sediment or refuse of lamp oil. This method was perfectly successful; the next day and the following days, I saw the earwigs checked by the bands, where the oil with which they were gorged, had fastened them, and I was thus freed from these voracious insects. *Revue Horticole.*

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Green Vegetables for Winter use.—It may be well to notice, at this season, a method of preserving green peas, string and shell beans, vegetables in such general use.

The green peas, etc., are first placed in a copper vessel (or common tin stew-pan) with an ounce of sugar to a quart of peas, exposing them to a gentle heat, stirring them constantly until the sugar is all taken up; they are then placed on a sieve reversed, and put into a spent oven after the bread is withdrawn, where they remain until perfectly dry, when they are put into paper bags, and kept free from damp.

Another method consists in throwing them into boiling water, afterwards into cold water, and then drying them in the same way, as directed above. This last method applies also to beans; always observing that string beans, before being placed in boiling water, should have the stringy parts removed, and be cut in two. Before the vegetables, thus prepared, are used, they should be soaked for several hours in lukewarm water. *Revue Horticole.*

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Culture of the Pine Tribe.—"The Duke of Bedford took a warm interest in planting. The Evergreen Drive at Woburn was planted by him with various kinds of Pine and Fir, selected with the assistance of Philip Miller, and thinned by his own care. Indeed, on this last point, an anecdote has been related characteristic of his disposition. In the year 1743, the Duke planted the large plantation in Woburn park known by the name of 'Evergreens,' to commemorate the birth of his daughter, afterwards Caroline, Duchess of Marlborough. The space was something more than 100 acres, and was before that time a rabbit-warren, producing nothing but a few blades of grass, with the heath or ling indigenous to the soil, and without a single tree upon it. In the course of a few years, the Duke perceived that the plantation required thinning, in order to admit a free circulation of air, and give health and vigor to the young trees. He accordingly gave instructions to his gardener, and directed him as to the mode and extent of the thinning required. The gardener paused and hesitated, and at length said, 'Your Grace must pardon me if I humbly remonstrate against your orders; but I cannot possibly do what you desire: it would at once destroy the young plantation, and moreover, it would be seriously injurious to my reputation as a planter.' The Duke replied, 'Do as I desire you, and I will take care of your reputation.' The plantation was consequently thinned according to his instructions, and the Duke caused a board to be fixed in the plantation facing the road, on which was inscribed—'This plantation has been thinned by John Duke of Bedford, contrary to the advice and opinion of his gardener.' Of the plantation so formed, Mr. Forbes, the present gardener of Woburn Abbey, says in the preface to the *Pinetum Woburnense*, privately printed, 'In the Woburn Evergreen plantation, formed in 1743, and which consists principally of the Coniferous tribe, many beautiful feathered specimens, with majestic stems, may be seen. They may be pronounced as unequalled by any other plantation in the kingdom; particularly the Pinus pinaster, strobus, sylvestris, rigida, cembra, Abies pectinata, and the Cedrus Libani; which may be chiefly attributed to the judicious thinning applied to that plantation when in a young state.' I may, perhaps, be excused for inserting another paragraph on the same subject, from the introduction written by my father:—'The culture of the family of the Coniferæ may be said to be almost in its infancy in this country. The numerous species of Pines introduced into Europe from distant climes, from the Himalayan range of mountains, and other parts of India, has given a new zest to those who take pleasure in bringing forward and cultivating hitherto unknown productions of the vegetable world; and, without going into an inquiry respecting the commercial advantages to be derived from the knowledge which we are yearly, (I may almost say daily,) acquiring of the growth and value and properties of trees, I will content myself with observing that the genus Pinus is probably entitled to wonder and admiration beyond all others; and that at no distant period, we may see the Abies (Cedrus) deodara, the Abies douglasii, and others of similar grandeur, naturalised and flourishing among the Cedars of Lebanon, in our British forests.'" *Correspondence of John, Fourth Duke of Bedford, with an Introduction by Lord John Russell, Vol. 1, Introduction, pp.* liii—lvi.

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The Orange Tree.—The following analysis of the ashes of the Orange tree, taken from the report in the London Literary Gazette, of the meeting of the Chemical Society on the fifth April, 1847, may possibly be interesting to some of your readers:—"Analysis of the ashes of the Orange tree (Citrus aurantium,") by Messrs. T. H. Rowney, and H. How. The materials employed in this examination were supplied by M. Da Camera, of the island of

St. Michael's. After describing the methods of preparing the ash, and the routine of analysis, the authors sum up with the following results :

	Root.	Stem	Leaves.	Fruit.	Seed.
Percentage of Ash,....	4·18	2 7[illegible]	13·73	3·94	3·30
Potash,.....	15 43	11 6[illegible]	16 51	36·42	40·28
Soda,.....	4 52	3·07	1·68	11·42	0·92
Lime,.....	49·89	55 1[illegible]	56·38	21·52	18·97
Magnesia.....	6·91	6·31	5·72	8·06	8·74
Oxide of iron,.....	1·02	0·57	0·52	0·46	0·89
Chloride of sodium,...	1·18	0·25	6·66	3·87	0·82
Phosphoric acid,.....	13·47	17·09	3 27	11·07	23·24
Sulphuric acid,.....	5·78	4·64	4 43	3·74	5·10
Silicic acid,.....	1·75	1 22	4·83	0·44	1 13
	100·00	100·00	100·00	100·00	100·00

These results confirm the observations of Saussure, that the largest amount of mineral constituents is deposited in those parts of the plant in which the process of assimilation appears to be most active. In the ashes of the root, the stem, and the leaves, the joint amount of the lime and magnesia exceeds the rest of the mineral constituents. In the fruit and seed, the alkalies are prevalent. Am I correct in believing that such analyses show the gardener the proper compost to use? —*Citron.*

(Test the value of this analysis by the application of phosphates, *e. g.* cow-dung, or superphosphate of lime.) *Gard. Chron.*

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The Chocolate Tree and its Uses.—What is generally called Cocoa, is merely the berries of Theobroma Cacao, pounded and drank either with water or milk, or with both. Chocolate is a compound drink, and is manufactured chiefly from the kernels of this plant, whose natural habitat would seem to be Guayquil, in South America, though it flourishes in great perfection in the West Indies. It grows also spontaneously and luxuriantly on the banks of the Magdalena. Mr. Scomburgk, in his recent expedition into the interior of British Guiana, found the country abounding in Cocoa, "which the Indians were most anxious to secure, as the pulpy arillus surrounding the seed has an agreeable vinous taste. Singular to say, however, they appeared perfectly ignorant of the qualities of the seed, which possesses the most delightful aroma. Mr. Scomburgk states, that they evinced the greatest astonishment when they beheld him and Mr. Goodall collecting these seeds and using them as Chocolate, which was the most delicious they had ever tasted." The height of the Cocoa shrub is from eighteen to twenty feet; the leaf is between four and six inches long, and its breadth three or four, very smooth, and terminating in a point like that of the Orange tree, but differing from it in colour; of a dull green, without gloss, and not so thickly set upon the branches. The blossom is first white, then reddish, and contains the rudiments of the kernels or berries. When fully developed, the pericarp or seed vessel is a pod which grows not only from the branches, but the stem of the tree, and is from six to seven inches in length, and shaped like a cucumber. Its colour is green when growing, like that of the leaf; but when ripe, is yellow, smooth, clear and thin. When arrived at its full growth, and before it is ripe, it is gathered and eaten like any other fruit, the taste being subacid. Chocolate, so called, and so prized both in the Spanish Continent and in the West Indies, never reaches Great Britain except as a contraband article, being, like nearly all colonial manufactured articles, prohibited by the Custom-house laws. What is generally drank under that name, is simply the Cocoa boiled in milk, gruel or even water, and is as much like the Spanish or West India Chocolate, as vinegar is to Burgundy. It is, without any exception, of all domestic drinks, the most alimentary; and the Spaniards esteem it so necessary to the health and support of the body, that it is considered the severest punishment to withhold it, even from criminals; nay, to be unable to procure Chocolate, is deemed the greatest misfortune in life! Yet notwithstanding this estimation in which it is held, the quantity made in the neighborhood of Carthagena is insufficient for the demands of the population, and is so highly priced, that none is exported but as presents! The signs by which good Chocolate or Cocoa is known are these:—It should dissolve entirely in water, and be without sediment; it should be oily and yet melt in the mouth; and if genuine and carefully prepared, should deposit no grits or grounds. That made in the West Indies, and in some parts of Cuba, is dark; but that manufactured in Jamaica is of a bright brick color, owing to the greater quantity of arnatto which is used in the preparation, and which, I think, gives it a richer and more agreeable flavor. In an economical point of view, Chocolate is a very important article of diet, as it may be literally termed meat and drink; and were our half starved artizans, over-wrought factory children, and rickety millinery girls, induced to drink it, instead of the innutritious and unwholesome beverage called Tea, its nutritive qualities would soon develop themselves in their improved looks and more robust constitution. The price, too, is in its favor, Cocoa being tenpence per pound; while the cheapest black tea, such as even the Chinese beggar would despise, drank by milliners, washerwomen, and the poorer class in the Metropolis, is four shillings a pound, or 310 per cent dearer, while it is decidedly injurious to health. The heads of the naval and military medical departments in England have been so impressed with the wholesomeness and superior nutriment of Cocoa, that they have judiciously directed that it shall be served out twice or thrice a week to regiments of the line, and to the seamen on board of her Majesty's ships, and this wise regulation has evinced its salutary effects in the improved health and condition of the men. Indeed this has been most satisfactorily established in Jamaica among the troops; and a remarkable fact corroborating this statement is, that by returns to the Horse-Guards, it is shown that only one death took place at Newcastle Barracks, in that island, out of a force of seven hundred men, for the quarter ending September 30, 1842; and that the same may be asserted for other regiments in the West Indies, and of the seamen in her Majesty's ships on the coast.

But the excellent qualities of Chocolate were

known not only to the Mexicans and Peruvians, from whom, as a matter of course, the Spaniards acquired a knowledge of its properties; but European nations also acknowledged its virtues. The Portuguese, French, Germans and Dutch, considered it an exceedingly valuable article of diet, and Hoffman looked upon it both as a food and a medicine. In his monograph, entitled "Potus Chocolate," he recommends it in all diseases of general weakness, macies, low spirits, and in hypochondriacal complaints, and what since his time have been termed nervous diseases. As one example of the good effects of Cocoa, he adduces the case of Cardinal Richelieu, who was cured of eremacausis, or a general wasting away of the body, by drinking chocolate. Liebig and other chemists have demonstrated beyond question, that no part of an organ which possesses motion and life is destitute of nitrogen:—"All parts of the animal body which have a decided shape, which form parts of organs, contain nitrogen; and the chief ingredients of the blood contain 17 per cent. of nitrogen, and no part of an organ less than 17 per cent. It follows, therefore, that nitrogen is that principle of the body, which being in the greatest quantity, and pervading all tissues, is that most frequently wasted, and most frequently in need of renewal. This must be admitted. It follows, then, that those substances which possess this principle in the greatest quantity in a given bulk, are those which must be best calculated to renew that which has been lost or wasted by the operations of the body. Now Caffeine, the principle of Coffee, and Theobromine, the principle of Theobroma Cacao, are the most highly nitrogenised products in nature, as the following analysis will show: Caffeine, according to Pfaff and Liebig, contains,

Carbon,	49·77
Hydrogen,	5·33
Nitrogen,	28·78
Oxygen,	16·12

Theobromine, according to Woskreseusky, contains

Carbon,	47·21
Hydrogen,	4·53
Nitrogen,	35·38
Oxygen,	12·80

—*Dr. Binns, in Symmonds' Colonial Magazine, (abridged.)*

The House of Shakespeare.—The present proprietors of the place of our great poet's birth, are, it appears, compelled to sell it, by the terms of the will of a former owner. The house is a freehold and is valued at about 2,000 pounds. This valuation has been founded on the number of visitors In 1846 it was calculated that 3,000 people had visited the house, though not more than 2,500 had entered their names in the book kept for the purpose. The house will be sold by auction in the course of the summer, and one or two enthusiastic Americans have already arrived, determined to see what dollars can accomplish in taking it away. The timbers, it is said, are all sound, and it would be no difficult matter to set it on wheels and make an exhibition of it. Every Englishman, however, must hope that no such desecration awaits it. Wholly irrespective of Shakespeare, as one of the few existing examples of an English yeoman's residence, of the reign of Queen Elizabeth, it deserves to be retained among us. *London Chronicle.*

Sale of Milton's House.—On Tuesday, Berkin Manor House, which is remarkable for having at one time been the residence of Milton, was put up for sale at the auction mart. It is situated in the rural village of Horton, Bucks, near the church, in which the remains of the poet's mother were deposited, and is about five miles from Windsor Castle and Slough. The estate comprised, besides the house, about 15 acres of rich orchard and meadow land. The sum of 2,700 pounds was the highest offer for it, which was below the reserved price. *Ibid.*

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To make Sour-krout.—Select sound, solid cabbages, slice them across, and place the slices in a barrel, in layers about four inches high; over each layer, strew a handful of salt, and some caraway seeds. Press the whole down very tightly; and when the barrel is full, place a very heavy weight upon the end. After standing a week,—more or less according to the temperature—the mass will begin to ferment; and when the fermentation is over the barrel should be headed up. There is no vinegar used in the preparation. Sour-krout is considered to be an excellent anti-scorbutic, and is used as such on board ships, in long voyages. *Gard. Chron.*

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Culture of Asparagus in Germany—Numbers 20, 21, and 22, of the Chronicle, the last I have received, contain sundry articles on the culture of Asparagus, by which it appears that in your country the preference is given to Asparagus which is suffered to grow some inches above the ground and which consequently acquires a green color by atmospherical influence. You consider this mode of culture preferable for two reasons: first, because the eatable part of such Asparagus is larger; secondly, because it has a finer flavor.

Living in a part of Germany where the culture of Asparagus is very common, I hope the following remarks, though from a foreigner, will not be unwelcome. Asparagus which has obtained a green color by its being exposed to the air, will neither be grown nor eaten here, and, strange enough, exactly for the same reasons which have been alleged by you for growing it above ground. However, we do not avail ourselves of artificial means, as supposed by you, such as tubes of earthenware or metal, and still our Asparagus, if well managed, is white and eatable almost the whole length.

The manner of growing it is as follows. It is never planted otherwise than in a deep, light and sandy soil, which has been trenched to a depth of three feet, well drained and well manured. A thick layer of horse-dung is put on the bottom of the trench and mixed with the soil. Strong loamy or clayey soil is decidedly disadvantageous to the growth of this vegetable. It will not thrive in it, does not become tender, and will very often become brown spotted, which the common people here call iron-mould (Cipumala,) especially if drainage has been neglected.

We take plants of two or three years' growth according to their vigor, and usually plant them in furrows, which are made at 2 feet distance, and from 1¼ to 1½ feet deep. The distance between the plants is likewise 2 feet. In these furrows the

plants are permitted to grow uncovered from the month of March or April, the usual and best time for planting, till the beginning or middle of November; at all events before severe frost is coming on. The soil, which has been taken out of the furrows and heaped up at the sides, is then put in, and the beds are completely levelled. The plants have had time during the summer to establish themselves sufficiently.

Next spring the young shoots will make their appearance above ground, and if every thing has been duly attended to; if strong and healthy plants have been selected, and if, besides, water has been given during a dry season, not a single one ought to fail. Some people begin to cut the strongest shoots in the third year, but a better result will be obtained by leaving them undisturbed till the fourth summer, only giving them every spring, in February or March, a good dressing of cow-dung. Manure is the most essential requisite for growing fine and tender Asparagus. The shoots are cut at sunrise and late in the evening, at a length of not more than 9 inches, cutting them with a long knife under ground as soon as the top of the shoot is lifting the soil. Asparagus will always have the finest taste if eaten immediately after having been gathered, but ought never to be kept longer than one day, and should be covered meanwhile with light earth, sand, or some other material of this description. It is a very bad practice, lately in use with our market-gardeners, to immerge the Asparagus immediately after cutting in a tub with water, leaving it in the water till they bring it to market. By this practice the finer flavor is altogether lost, and the cooks should be warned against doing the same.

Wherever manure is not a very expensive article, the culture of the Asparagus pays well, since the lightest and most sandy land, where nothing else can be grown with advantage, can easily be adapted to its culture, and will yield a rent for a long series of years. Besides, the same lands can be made use of for carrots and other vegetables, when the time for cutting is over. Living myself some hundred steps from the Baltic, and having read different accounts of the famous Asparagus culture at the sea coast, near San Sebastian, in Spain, I have last year made the experiment to grow it in pure sea sand containing no humus or vegetable matter whatever. It only received a moderate supply of manure, and has even not been watered during the last hot summer; nevertheless, it is growing this year so well, that I might have cut a tolerable quantity of shoots as big as a lady's finger, if I would be foolish enough to do so.

The price of Asparagus with us varies from four to seven or eight schillings, or English pence, per pound, the former being the general price from the moment the weather begins to become warm. Many thousand pounds are sent by the steamers to Sweden and other foreign countries, since the Lubeck Asparagus is well renowned. Though I never had the advantage of seeing your fine country, and therefore cannot be a judge of your green Asparagus, I have several times eaten green Asparagus in Italy and France, but I dare confess merely for want of better. However, there is no quarrelling as to matters of taste. As far as regards tenderness, I am at a loss to understand how Asparagus can improve by being exposed to the drying influence of air, wind, and sunshine. It may become more aromatic, though I doubt it, but it will certainly require a greater exertion in being masticated.

Some persons assert that another kind of Asparagus is cultivated in some parts of the south of Germany, which always appears green on the table, though white shoots are equally eaten. I have hitherto not been able to procure any authentic information about its existence, and am inclined to think that only the manner of culture will produce the difference. An English Giant Asparagus has lately been offered by some nurserymen, likewise hitherto not cultivated by myself. Different sorts may require a different treatment.

The season for Asparagus is at present on the decline. However I have requested a friend at Lubeck to send you with this letter, a sample of our market Asparagus, grown and sold in the common way, and I beg you to give it a fair trial, not overlooking that it will have been cut almost a week when arriving with you.—*Heinr. Behrens, Proprietor of the Sea Bath, Travemunde, near Lübeck, June 7.*

[We are much indebted to our kind correspondent for this communication and the Asparagus, which was excellent in quality, and weighed 6 lbs. per 100 without waste. We shall advert to it shortly.]—[*Gard. Chron.*]

DOMESTIC NOTICES.

A Picture of the West.—*Dear Sir:* I have been looking over the first eight numbers of your journal, lately received from Albany in one package; and be assured, this is one of the *best treats* enjoyed during a residence of eleven years upon the prairies. While perusing the pages of this beautiful work, I no longer feel myself an isolated being, far out upon the borders of the cultivated portions of our land, but in the midst of highly gifted and refined minds, sensibly alive to the best interests of our common country. It has been my lot, from childhood, to live upon the frontier, removed in a measure from the refinements in horticulture which result from a combination of wealth, intelligence, and a well regulated taste. Still, I claim kindred with all who love this pursuit; and, although I may be regarded as a "poor relation," none will, I trust, disown me on that account.

A number of your correspondents have set up claims to their own particular locality, as among

the most favorite spots for the production of good fruit. This was to be expected.

"Such is the patriot's boast, where'er we roam,
His first, best country, ever is at home."

My purpose, however, is not to find fault with the pretensions of others, but to put in a very modest claim in behalf of the valley of the Illinois. as a fruit growing region. Not, perhaps, equal to the classic Hudson or the shores of Erie. but as having some claims to attention. You may not be aware that the Illinois river is the *centre of the great Western basin*. Although she is now the humble tributary of the Mississippi, there is no doubt of the fact that she once enjoyed the honor of conveying the waters of the great northern lakes to the ocean. The waters of the northern lakes, which were for a long period discharged through the Illinois, have cut out a deeper and wider valley than either the Mississippi or Missouri, where those rivers pass through the same geological structure. It is true they all come together on the same level near St. Louis ; but from this point upwards, the Mississippi and Missouri are rapid streams, whereas the Illinois for two hundred and fifty miles from its mouth is almost as near a level as the Hudson from New-York to Albany. To illustrate more plainly what I mean, it may be remarked that the waters of the Illinois at Henepin are at least one hundred feet lower than those of the Mississippi at the mouth of Rock river, which is nearly opposite. This deep cut of the Illinois, which never could have taken place without the aid of the waters of the great lakes, has disclosed and made accessible one of the largest and best coal fields in the world. Besides, it gives the country upon its borders a more thorough drainage than is generally found in the west.

The table lands of this region, which are generally about two hundred and fifty feet higher than the river, and comprise at least three-fourths of the whole country, are more exempt from late spring frosts than any other district with which I am acquainted. There has not been, during the last *eleven years*, a late spring frost hard enough to injure the apple or the peach upon our high lands. In the vallies we frequently suffer from this cause, as they do every where else, except in the vicinity of large bodies of water. But in the high open prairies the winds come in contact with the surface of the ground and keep back vegetation until the whole atmosphere becomes warm—after which, we seldom or never have frost in the spring. The buds of the grape vine, which are as tender as any other vegetable, have never been injured in the least upon our high lands during the last eleven years. And our cultivated vines, since they commenced bearing five years ago, have annually matured their fruit. Can our friends on the south shore of Lake Erie or on the Hudson say as much?

The growth of trees upon our rich, dry, warm soil, exceeds anything of the kind to be found elsewhere, and the wonder is that the winter does not kill them. The cool, searching winds of autumn, however, seem to ripen the young wood so well, that we seldom suffer by what you have very appropriately termed the "frozen sap blight." I have seen a few cases of this disease, and have always believed that the first freeze of autumn did all the mischief. At least it has never occurred with us, except in those seasons, (1842-3 and 1845-6,) when the change from a high to a low temperature was very sudden. We could hardly say that we had an autumn in 1842—for summer continued until winter commenced. Tender varieties of the apple are sometimes injured by the bursting of the bark near the ground upon the first autumnal frost. But these disorders only occur where over-generous cultivation is practiced, and in the main our fruit trees are thus far remarkably healthy. The peach, however, is quite uncertain in its bearing where the trees flourish well—not from spring frosts, but from the too great development of the fruit buds in autumn. If the germs of the peach remain alive until mid-winter, we are sure of a crop.

This part of the country has not been settled long enough to produce much fruit, but it would be hard to find a district where a greater number of beautiful young orchards could be seen than in Peoria county. With a few exceptions, our orchards are all grafted fruit of the first quality ; and it has been admitted by all who have had an opportunity of making the comparison, that in size, beauty and flavor, our fruits far exceed anything of the kind to be found "down east." We, therefore, look forward with confidence to the period, not distant, when all will acknowledge that we have the *best fruit district in the United States*. Yours, truly. *Edson Harkness. Fruit Farm, Peoria Co., Ill.*

[It is one of the best proofs of the great general fertility and adaptation of our country to horticultural pursuits, this hearty championship for each favorite locality which our correspondents (not to mention ourselves) exhibit in their articles from so many different points of the compass. We sincerely hope to see these natural advantages, great as they are, all thoroughly put to the trial by the most skilful and scientific cultivation.—Ed.]

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New Seedling Cherry.—*Dear Sir:* Accompanying this note I forward to you a few cherries, part of the produce of a tree, the seed of which I planted seven years since. I have concluded to call it *Wendell's Mottled Bigarreau Cherry*—it being of true Bigarreau character and beautifully mottled—as you will perceive. The stones which I planted were from the fruit of the large white Bigarreau grown in a garden of this city, which has a collection of the finer cherries in it. The tree is of upright growth, quite thrifty, and an early bearer, as this is the third season it has fruited ; the first year it bore three cherries, last year about half a dozen, and this year it has borne about a quart. I also send you a branch of the tree, with the foliage. The fruit was exhibited at the first exhibition of our new Horticultural Society—the Albany and Rensselaer—on the 3d inst. At the same exhibition. I also presented another seedling cherry of my own raising, of Bigarreau character, and very fine flavor, but of size and appearance, inferior to the one I send you ; I call it the Carnation Bigarreau, as it is of a carnation colour. I have presented specimens of it to Mr. Howard, of the Cultivator, who will probably notice it in that journal. Yours, very truly. *Herman Wendell. Albany.*

[This appears to be a valuable fruit on account of its ripening rather later than the other varieties of its class. It is of large size, regular obtuse heart-shaped, dark purplish red, becoming nearly black at full maturity, and mottled with small dark streaks or points. Suture marked with a dark line half way round. Stalk of moderate length, set in a round and regular depression. Flesh firm, crisp, well flavored, and the pits small. Ripens about the season of *Downer's Red*.—Ed.]

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Albany and Rensselaer Hort. Society.—The first exhibition of this new society, (remarkable for the variety of the products shown,) took place at the Geological Rooms, Albany, on the 3d of July.

Mr. James Wilson received the premium for the best twenty-five hardy roses, and for the best and greatest variety of roses. Mr. Wilson also exhibited a fine collection of Dahlias. The collection of roses shown by Dr. Wendell, of Albany, and Mr. Vail, of Troy, were also very fine ones; as well as the large collection of herbaceous and annual flowers shown by Mr. Newcomb.

The premium for the largest variety and best cherries, was awarded to Dr. Wendell. The first premium for strawberries was given to Mr. Jas. Wilson, for specimens of the *Swainstone Seedling* shown by him, which were considered by the committee, as finer flavored, though not so large, as those of Hovey's seedling, shown by different members. Mr. Prentice, of Albany, exhibited the finest collection of vegetables.

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The Genesee Valley Hort. Society.—The report of this society, June exhibition, held at Rochester, on the 23d of that month, indicates a fine show. About one hundred and fifty varieties of the finest roses were exhibited, with names, including many of the best Hybrid perpetuals, Moss, Hybrid Chinas, etc. A charming emulation among the lady members of the society, appears to have filled the tables with a great profusion of the choicest flowers, both exotic and indigenous. We noticed with pleasure, that one lady, Miss Rogers, presented sixty-six species of native plants in bloom.

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Utica Horticultural Society.—The exhibition of the 29th of June, was an excellent one. The strawberries shown were unusually fine, and among the varieties that attracted most attention, were *Hovey's Seedling, Black Prince, Swainstone's Seedling, Bishop's Orange, Baynes' Extra Early, White Pine*, etc. Among these, some berries of *Hovey's Seedling*, shown by Mr. Wm. Walcott, were the largest, measuring four and three-quarter inches in circumference. This gentleman also exhibited very large and fine specimens of Black Prince and Swainstone's Seedling strawberries. The show of roses was large and fine. The largest contributors being Mr. Childs, who showed seventy sorts, Mr. Boyce sixty-one sorts, and Mr. Wm. Tracy forty sorts, Mrs. Perkins, Mr. Hastings and Mr. Williams, also exhibited very large and beautiful collections.

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The Rose Bugs and a Philosopher.—One of my very good neighbors, and one of the best informed men of my acquaintance, this summer undertook to "fight the rose bugs," a hopeless task you'll say, but nevertheless rendered important by their extraordinary ravages; they have been more numerous in the vicinity of Philadelphia this year than we have ever known them. But my philosophical neighbor was for once foiled. His operations were in this wise. His man Pompey and himself rose early to enjoy a savage pleasure in conquering their hitherto invincible enemy; Pomp rolled up his sleeves for slaughter, while my friend pulled on a pair of gloves. To it they both went, and in an hour or two, or ere the tuneful breakfast bell had called neighbor W. to his matutinal repast, a bucket full of these *coleoptera* had been bagged. "Now," says Pomp, "massa, 'spose I scald 'em." "Oh, no," says Philosophy; "I'll teach them to trespass on my manor, the varmint!" So he went to his laboratory and brought out some ounces of chloride of lime, which dissolved, was poured over the active mass; they were then buried, and Pomp spanked his spade over the *grave*, as a thing done. Philosophy slept well that night, *and* in the morning was horrified to find all his enemies airing their wings in the sun, having had a resurrection, which astonished my friend, but did not Pomp, who still thinks scalding water would have been better. Yours. *Jean Jacques. Philadelphia, July 15th*, 1847.

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Burr's Seedling Strawberries.—We have the most flattering accounts of the new Ohio strawberries, raised by Mr. Burr, of Columbus, O. We give, therefore, the following report regarding them, from the Columbus Hort. Society. The fruit committee of the Cincinnati society have also reported in detail upon these new sorts, which they have pronounced "remarkably fine." As we understand Mr. Burr is able to supply plants of the different sorts, we trust our cultivators will give them a trial in New-England and the Middle States. —Ed.

Report on Burr's Seedling Strawberries, by the committee of the Columbus Horticultural Society.—The committee having visited Mr. Burr's garden, at several times during the blossoming and fruiting of his Strawberries, take pleasure in stating to the public, that their observations the present season, have fully confirmed the high opinion expressed by this society the past year, respecting the character of Burr's Seedling strawberries; and as most of the old standard varieties were exhibited by Mr. Burr, growing side by side with these, the committee had full opportunity for comparing them; and they do not hesitate to declare that in their opinion, several of his seedlings are superior in all respects to any other varieties in cultivation—at least for the climate and soil of this region.

The following named varieties are deemed worthy of particular commendation. Several of them were noticed in the report of last year, and have fully maintained the high character then awarded them:

1. *Ohio Mammoth.*—Fruit very large, averaging larger size than any other strawberries known; shape rather long, conical and somewhat angular; colour light red, flavor sweet and excellent; foliage large and plants vigorous, hardy, and productive; flowers perfect, or staminate. Produced from Burr's old Seedling and Hovey's.

2. *New Pine.*—Fruit large, colour pale red, flavor highly aromatic, sweet and delicious, very early and uncommonly productive; plants vigorous and perfectly hardy; flowers pistillate—believed to be the best strawberry cultivated.—From Burr's and Hovey's.

3. *Rival Hudson.*—Fruit of a dark and shining red colour, resembling the Hudson of Cincinnati, except that the fruit and stem are longer; flavor very rich and excellent; plants hardy and very productive—a very handsome and excellent variety for market, or domestic use—flowers pistillate. Produced by the old Hudson and Burr's.

4. *Columbus.*—Fruit large, nearly round, of a beautiful dark colour and rich sweet flavor; plants uncommonly prolific and quite hardy—flowers pistillate.—From Hovey's and Burr's.

5. *Scioto.*—Fruit of large size, colour light scarlet, flavor rich, sweet and delicious; plants very productive, vigorous and hardy—pistillate.

6. *Scarlet Melting.*—Fruit rather long, with a neck, colour bright red or scarlet, flavor excellent, flesh very tender, (melting readily in a dish with sugar,) consequently not suitable for transporting to market, though delicious for the table; plants very productive, of rapid and vigorous growth and hardy—pistillate.

7. *Profusion.*—Fruit medium size or small, flavor rich and sweet; plants hardy and a prodigious bearer—200 perfect berries having been counted on a single plant—pistillate.

8. *Late Prolific.*—Fruit of good size, largest berries measuring over three inches—flavor rich and excellent. A very valuable variety, owing to its lateness of ripening—being full ten days later than most other varieties—and its great productiveness—35 quarts of the berries were picked from a bed six feet by twenty; which is equal to two and a quarter bushels to the rod—plants uncommonly vigorous and hardy—pistillate.

9. *Burr's old Seedling,*—(staminate,) maintains its high reputation, in this region, for productiveness and excellent flavor—and is found to be the best variety for planting contiguous to the pistillate varieties to ensure their productiveness.

B. Latham,
M. B. Bateham,
S. Medary,
John Miller,
} *Committee.*

[*Ohio Cultivator.*

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Prizes for New Fruits.—The Cincinnati Horticultural Society, at the suggestion of N. Longworth, Esq., have offered two prizes of $100 each, for a new American seedling raspberry and strawberry, which, after thorough trial, shall prove superior to any now in cultivation. Mr. L. offers to pay one half of the premiums.

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Dubois' Early Golden Apricot.—This is a seedling variety, originated by our neighbor, Mr. Charles Dubois, of Fishkill Landing, N. Y. It has attracted our attention for two or three years past, and as it appears well worthy of something more than a local reputation, we have procured specimens from the original tree, and now publish a correct description of this new variety.

Though this apricot is of small size, and simply good flavor, it has two qualities which will, we think, render it popular among fruit cultivators. The first is its great productiveness in all seasons; and the second, its comparative exemption to the attack of the curculio.

We may give a pretty correct idea of the productiveness of the *Early Golden Apricot* by saying that the crop of fruit borne by the original tree (which is growing in common loamy soil without preparation) has been sold in the New-York market for the last three years at prices varying from $4 to $16 per bushel. In 1844 the crop of this tree brought $45; in 1845, $50, and last year it was sold for $90. The fruit is very fair in appearance, and bears carriage to market well.

Mr. Dubois, who is a pretty extensive orchardist, finds that in seasons when the fruit of the *Moorpark*, one of the best and surest sorts, nearly all drops before maturity, stung by the curculio—that of the *Early Golden* hangs in rich clusters on every limb. With him, indeed, this sort, among the apricots, appears to be avoided by this insect, in the same way that the common *Damson* does among plums—probably from the thickness or some other peculiarity of the skin.

We can not but think, therefore, that in all parts of the country where the sorts of apricots already in cultivation fail because stung by the curculio, this variety will be likely to give abundant crops. The tree, probably from being a native seedling, is also more thrifty and hardy than most other sorts.

Mr. Dubois has propagated quite a stock of young trees, and will, in the autumn, supply orders at a very moderate price.

Dubois' Early Golden Apricot.—Fruit small, about 1¼ inch in diameter, roundish-oval, with the suture narrow but well marked, but extends only half way round. Skin smooth, uniform pale orange. Flesh orange, moderately juicy and sweet, with a very good flavor, separates from the stone. The latter is oval, very little compressed, kernel sweet. Ripens from the 10th to the 15th of July, ten days before the Moorpark.

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Rose-Slugs.—Dear sir—My garden has been terribly infested, this season, with a small green insect, a species of slug, about half an inch long, and very slender, which fixes itself on the under side of rose leaves and eats up all the foliage, so that at last the mere skeleton of the leaf which remains looks quite brown and seared. Can you give your readers any remedy for this depredator? Your friend. *A Constant Reader.*

[Yes, it is by no means difficult to destroy the rose-slug. Take either strong soap-suds or tobacco-water; we prefer the latter, which should be of a *light* brown colour; as soon as the slugs make their appearance on your rose-bushes, take a large syringe and shower the whole plant, being particularly careful to throw it on the *under* sides of the leaves. This will kill the whole brood on any one bush, almost immediately—and the next morning you can wash off the leaves with some clean water from the rose of a watering-pot. If this is pursued with all your rose bushes, *as soon as the slug makes his appearance* on them, you will easily

get rid of it. If allowed to run his course and deposit his eggs, you will probably have an increased number the next season, that will perhaps devour every rose-leaf in the garden.—Ed.]

.....

Queries on Sea-Coast Culture.—Dear sir—The preparation of several of the valuable articles of the Horticulturist, appears to have been suggested to you by particular inquiries of correspondents. I therefore presume to ask if the culture of the quince is not of sufficient general interest to make a subject worthy of a little space in your columns?

In the island of Rhode-Island, quinces are planted closely, in the most exposed situations, for screens against the salt-air; and in this way they are said to yield very good crops of fine fruit. On the coast generally an exposure to the sea is thought to be an advantage, I believe, and it is usual to select low, damp situations near the shore, as the best place for this fruit. Some think they do better if the sod is not broken over the roots. You state in the "*Fruits of America*," and also in a late number of the *Horticulturist*, that the common practice is erroneous. Do you condemn the *choice of low or damp* ground, or wish simply to inculcate the necessity of liberal attention, manuring and cultivation? [Especially the latter.—Ed.]

It is said that apple orchards do not succeed on the sea shore, and that fruit trees generally do not thrive. I think this is not always the case, however, and as I intend to set an orchard, next autumn, on a hill contiguous and exposed to the sea, I should be glad to get any information or advice about it, and I think it would be valued by many of your subscribers on the coast. Are not some varieties, (the Roxbury Russet for one,) better adapted to the sea shore than others? [The Roxbury Russet, Baldwin, Yellow Bellefleur and R. I. Greening are best adapted to the sea shore.—Ed.] What shade and ornamental trees and shrubs are best suited to grounds subject to the influence of the sea? I have seen the leaves of trees and of weeds shrivelled and black as if frost bitten, after being wet with spray in a gale. Salt-manure, (sea-weed, &c.) has been found an injurious application to apple trees, at a distance from the shore. With much respect, your ob't serv't. *F. L. Olmsted. Sachem's Head, Guilford, Ct., June 29th*, 1847.

[We refer our correspondent to the article on the culture of the quince, in this number, and also to the notice in the leader, on Mr. Tudor's successful mode of protecting all kinds of trees and plants against the injurious effects of sea winds.—Ed.]

.....

The Pear-Tree Blight at the West.—If my observations are correct, I have witnessed the following facts, touching blight:

1. Seedling pear trees die of blight the first summer, precluding the idea that freezing could be the cause, nor had I ever seen any thing like insect blight on my premises.

2. A pear tree budded, and started soon after the same season, usually dies with all the appearance of blight—making, as I suppose, a clear case of frozen sap blight, as frost overtakes the tree in the midst of its growth.

3. A pear tree, very thrifty and vigorous, if barked in the least by a single tree, in the last half of the season of its growth, frequently dies with leaves on, and just as if blighted.

4. I have seen blight pass in a streak through an orchard, and for which I could account only by supposing it had been caused by a cold current of air, or by insects brought in by a current of air, but no insects could be discovered.

5. The most frequent cause of blight seems to me to be warm wet weather, succeeded by very dry weather.

To these I may add:

6. Our friend, D. Thomas, observed much blight to follow a severe frost in the spring of 1845.

From all which, as heretofore, I hold blight may proceed from different injuries, when the sap of the tree is in a particular condition, and that condition I believe to be a kind of plethora, or overfullness. In the human system, a small injury, it is said, may produce lock-jaw; and interruptions in the circulation of the blood frequently produce sudden death.

As remedies for blight, Rev. C. Springer proposes thin land: yourself mounds and root pruning. I believe a well drained soil, never deficient in moisture, such as is frequently afforded by river banks, will be likely to succeed. Yours. *Eli Nichol. Walhanding, O., July 3d*, 1847.

.....

Variation in the Peach Tree.—In the garden of Mr. Willis in this city, is a tree, which he planted as a *peach* tree, and which actually bore peaches last summer, now full of *nectarines*. There is no perceptible difference between this tree and the peach trees on each side of it, which are well filled with their natural fruit.

Downing, in his "Fruits and Fruit Trees," says the nectarine "appears to be only a distinct accidental variety of the peach, and this is rendered quite certain, since there are several well known examples on record of both peaches and nectarines having been produced on the same branch. The Boston nectarine originated from a peach stone."

The Boston nectarine, to which reference is made above, is cultivated in the garden of Samuel G. Perkins, Esq., of Brookline, and its origin is thus described by him: "This fruit I obtained from Mr. T. Lewis, of Boston, in whose yard it was produced from the kernel of a peach stone, as he and his mother both informed me; they, at the time it first bore fruit, never having seen a nectarine. Mr. Lewis, as the tree came forward, always supposed it would produce what is called a peach; but on seeing, when it first appeared, this beautiful fruit, with a smooth skin, was impatient to know what it was, and carried it to the late Mr. S. Pomeroy, who was then the leading cultivator of fruits in this region. Mr. Pomeroy brought it to me, for although he knew it to be a nectarine, he had never seen any so large, and as I had the Red Roman in perfection, he wished to compare it.

"I immediately obtained buds from the tree for Mr. Pomeroy and Mr. Preble, as well as myself. All these failed, mine alone being preserved. The original tree from which they were taken, was unfortunately soon after destroyed.

"With regard to the original tree found in Mr.

Lewis' yard, I have no doubt that it was really the product of a peach stone; for we all know very well that such instances are on record, and that a nectarine is nothing more than a *smooth skinned* peach; the stone of a downy peach may produce occasionally a peach without down."

There was no perceptible difference between the blossoms of the tree in Mr. Willis' garden, and the peach trees by the side of it; and there was no suspicion that it was other than a common peach tree, until the fruit began to form. The fruit is now as large as a ripe damson and of a similar shape; skin pale green, with a deep violet red cheek—and resembling the Downton Nectarine.—*Portland Advertiser.*

[We recommend the foregoing to the attention of our incredulous Cincinnati friend.—Ed.]

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Variation in Stawberry Blossoms.—With my limited experience in the culture of strawberries, I shall not venture to take any part in discussing the strawberry question. But as that has happened to me which I have not seen noticed, so far as I recollect, by any writer, I will just state the fact, which, should you think it worth the while, you may contrive to verify another season.

I had this spring some Hovey's seedlings (received from S. Walker, Boston,) which came out in a feeble state. The first trusses of flowers thrown out by them were *decidedly staminate*, more so than those of the Early Scarlet. I had some seedlings near by that were as decidedly pistillate as I ever saw a Hovey, but produced full trusses of perfect berries, and must, therefore, according to the theory, have been fructified by the Hoveys. *Afterwards*, when the Hoveys became stronger, some of them threw out trusses of decidedly *pistillate* blossoms—that is, some of the identical plants that at first produced *staminate* ones.

I think there can be no mistake about these facts, for my surprise at the appearance of the strongly staminate blossoms, led me to watch the plants critically. Very respectfully yours. *E. C. Tracy. Windsor, Vt. July 6th*, 1847.

.....

Ginseng—*Panax quinquefolium.*—As this root commands a very high price, in China, where it formerly (before American innovation) sold for its weight in gold, it can without doubt be made a very profitable article to American commerce in our increasing intercourse with that mighty empire. The roots, in their wild state, are usually small, but by cultivation they may be increased to three or four times the ordinary size. The plant will flourish in almost any ordinary soil, and exacts only the simplest culture.

As the Chinese are so fastidious, and at the same time so limited in their wants, in consequence of the immense fertility and unceasing industry of its intelligent population, we have as yet been enabled to furnish them with but few articles that are in great request by them, and it is, therefore, highly important that we should enlarge the quantities of such as they actually desire, as a means of commanding the balance of trade, and thereby lessen the drain of specie or of its equivalent. *Wm. R. Prince. Flushing, July* 12, 1847.

Notes on Strawberries.—The *Black Prince* strawberry succeeds admirably here. The fruit, in my estimation, is superior to Hovey's seedling. It is very highly esteemed by others who have seen it. The vines are very hardy and productive, and the berries are so beautiful as to render the variety very desirable to cultivate for the market.

Stoddard's Seedling has much disappointed us. It turns out to be the Alpine. Many cultivators have also been much disappointed in Hovey's seedling. Numerous beds were set out last season, with expectations of large crops. Nine-tenths of the plants were unproductive. Mr. Comstock, of this place, procured his plants direct from Hovey, most of which were *staminate*. Col. Wilder examined a bed of them in the garden of Stephen H. Smith, and gave the opinion that the staminate plants were not Hovey's seedling. When a bed first came in blossom, I examined some of these plants in my own garden, and found a difference in the shape of the leaves, between the staminates and pistillates. The leaves of the latter were rounder, and upon the under side of different shade of green; afterwards the difference became less perceptible. Yours, &c. *L. C. Eaton. Providence, R. I., July* 8, 1847.

.....

Preserving Scarlet Geraniums.—Nothing is more showy in the flower gardens during the whole summer and autumn, than beds or masses of the large scarlet blooming geraniums, of which the Old Horse-Shoe Geranium is the original type—and such of the new sorts as *Tom Thumb*, etc., the latest and most brilliant edition. As there are, however, many who would be glad to cultivate them who have no greenhouse in which to keep the roots, I will mention, for the benefit of such, a very simple method which I pursue with excellent success.

As soon as the October frosts have touched the foliage, I dig up my scarlet geranium plants, and set the roots on the floor of my cellar. Here they remain for a week or two. I then *hang them up*, wherever it is convenient, in the cellar, either the dry roots or with the little ball of earth which may have adhered to them. Here they remain (the cellar not admitting frost) quite sound and dormant till spring, when my beds are again ready for them. So far from injuring them, I think they bloom rather finer after a winter of complete *rest*, than when they have been kept in the greenhouse. *X. Y. Z. Boston, July*, 1847.

.....

Rose-Bugs.—This insect is more troublesome to us than any other, or I may say than all others put together. In fact, so great have been its numbers all the past month, that if we are to have the like many seasons, I shall feel like giving up my garden to them and "backing out," leaving the little rascals in full possession. This year they are not content, so numberless are they, with devouring all my roses: I might be willing enough to compound for this mischief. But they have literally eaten up all my cherries, and then have devoured, or cut off from the trees, the greater part of all my young half grown apricots and nectarines. I find that the lighter the soil, (mine is very sandy), the more do the rose-bugs abound. In gardens on

loamy or clayey soils they are but little known. Is there no relief? Very truly. *A Jerseyman. July 5th*, 1847.

[The rose-bug is more numerous in gardens where the soil is sandy, because the insect has its winter quarters in the ground, and the lighter and warmer the soil the greater the certainty of every one coming out alive when the summer commences.

This is one of the most difficult of all insects to subdue, when it is much multiplied—since it defies tobacco-water, smoke, salt, and all that either drives away or destroys most other insects. Indeed, nothing but *hot water* or *fire* seems to put an end to it. Hand-picking and burning them up is the best and surest remedy, when they are not numerous, and are confined, for example, to a few flowering plants—roses and the like. But this is out of the question when they take entire possession of large trees, etc., as noticed by "A Jerseyman." Since the young rose-bugs pass the winter in the ground, perhaps below the reach of frost, in the shape of grubs, and rise to the surface in a pupa state, early in June, it appears to us that they may, where they exist in great numbers, perhaps, be more successfully attacked just before they emerge from the earth, than afterwards. They must then be in a more tender state than when in the full grown stage, with wings. As they nearly all rise to the surface of the ground and emerge about the same time—viz. that of the opening of the damask rose, we would suggest the application to the soil, under all the trees or bushes where they were most abundant the year previously, of *boiling water*. This, if poured on the ground just at the right time, would, we suppose, be likely to kill myriads of them at once, and the proper moment might be ascertained by noticing the very first appearance of the insect, and examining the soil at the same time.—Ed.]

Rapid Growing Trees.—I am anxious to plant a considerable belt of trees, both for effect and shelter. I wish to select those of the quickest growth—but I wish to avoid such as, though of rapid growth, have the troublesome habit of throwing up suckers—like the *Ailanthus* and *Silver Abele*. Will you please to assist me, by a word or two of advice in your journal? Respectfully. *J. Smith. Philadelphia.* [We recommend the Silver Maple (*Acer dasycarpon*,) the Cork Elm (*Ulmus tuberosa*,) the Ash-leaved Maple (*Negundo fraxinifolia*,) and the Weeping Elm (*Ulmus americana*.) These make both wood and thick masses of foliage very rapidly, and are among the most ornamental of all rapid-growing trees.—Ed.]

MASSACHUSETTS HORTICULTURAL SOCIETY.

Exhibition of Saturday, June 12, 1847.

FLOWERS.—From M. P. Wilder, President of the Society, fine new hardy Ghent Azaleas, including Buckinghamii, dianthiflora, regina, etc; white Camellias; Brugsmansia Knightii, formerly Datura; Calceolarias, Petunias, Spiræas, Tree Pæonies, Lilacs, Cinerarias, Roses, and cut flowers in variety, embracing many beautiful specimens.

From *Captain Sweetlin*, of the ship Augustine Heard, from Valparaiso, by Capt. F. W. Macondray, a Cactus from the Araucaria mountains in Chili. This was a noble specimen of this tribe of plants, measuring nearly five feet in circumference, and very formidable from the immense number of its thorns. From its form, and for want of the proper name, the Committee christened it the *Ottoman*.

From *J. E. Teschemacher*, a plant of Ismene calathina, or white Peruvian Wedding flower, very fragrant; plants of Echinocactus ottonis and E. mammillarioides, a seedling from Vera Cruz, (curious); also a fine plant of E. Eyriesii, with three blooms of its elegant, long tubular white flowers, and nine buds.

From *Joseph Breck & Co.*, twelve species of Iris: amœna, variegata, florentina, germanica, pallida, siberica, flavescens, squalens, etc, including susiana, one of the most beautiful and admired of this tribe; Pæonia arborea, Banksii, sibirica, paradoxa, officinalis, varieties of rosea and albicans; Lupinus polyphyllus, blue and white; Hyacinthus plumosus, Aquilegias in variety, Pansies, Lychnis, Hesperis, Sophoras, etc.

From *Augustus Aspinwall*. Roses in great variety.

From *T. H. Perkins*, by W. Quant, five plants of Pelargoniums, and two Vinca herbacea, var. purpurea and alba.

From *James Nugent*, Asclepias cinerea, three Calceolarias, Erica ventricosa superba, and a fine campanula, also cut flowers.

From *Wm. Mellar*, three bouquets, Pelargoniums in variety, Pæonies, Roses, Amaryllis, Iris, and other cut flowers.

From *O. H. Mather*, a great variety of cut flowers, including Roses, Pelargoniums, Phlox drummondii, Cacti, Cinerarias, Abutilon, Stocks, Verbenas, &c.

From Mr. *Bradford*, a bouquet composed of indigenous flowers.

From *Samuel Walker*, fine Ranunculus in great variety, but past their perfection; Pæonias and Irises in variety; Hawthorn, double white and scarlet, grand flowering and other varieties; Aquilegias, Lychnis, Hemerocallis, Hyacinthus plumosus, Pansies, fine specimens of Dictamnus fraxinella, var. alba and other cut flowers.

From *E. M. Richards*, six varieties of Iris, Lupinus polyphyllus, Sophora.

From *J. L. L. F. Warren*, Pæonia arborea banksii, P. globosa Cassoretti, papaveracea, Becalinii rubra plena, and other varieties; a fine display of Rhododendrons, Lupinus polyphyllus, Phlox drummondii, var. alba; five flat hand bouquets and four round ditto.

From *J. L. Gardner*, by J. Thomas, one large pyramidal bouquet, and one large design.

From *Parker Barnes*, one fine plant of Petunia Hebe, Boronia virginea, and Alstrœmeria pelegrina.

From *William Kenrick*, by Miss Russell, one large bouquet, Pæonias in var., Purple Beech, Laburnum, Snowballs, and other cut flowers.

From Messrs. *Winship*, a fine collection of plants, occupying one circular stand, including a fine show of Azaleas, Hawthorns, Spiræas, Iris, Chionanthus virginicus, Calycanthus floridus, Mespilus prostratus, Loniceras, Pæonias, etc.; and also two flat bouquets.

From *John Hovey*, two flat bouquets and a variety of cut flowers.

From *Hovey & Co.*, six hand, and two circular table bouquets; also nine varieties of beautiful Azaleas.

AWARD OF PREMIUMS

On Pot Plants.—Alex Mc Lennan, E. Augustus Story, and J. Breck, judges.

First premium for best six plants, to *Wm. Quant*, $2; second ditto to *A. Bowditch*, $1.

On Hardy Azaleas Hawthorns, &c.—H. W. Dutton, Wm. Quant, and R. M. Copeland, judges.

For the best display of hardy Azaleas, first premium to the Messrs. *Winship*, $3.

For the second best display, the second premium to Messrs. *Hovey & Co.*, $2.

For the best display of Hawthorns, first premium to the Messrs. *Winship*, $3.

For the second best ditto, to *S. Walker*, $2.

For the best design, a moss vase, (dissimilar to former ones

shown,) with flowers, to *J. L. Gardner*, by J. Thomas, a premium of $2.

For the second best design, to Miss *Russell*, $1.

For a vase bouquet, to *J. Thomas*, a premium of $2

For the best table and mantel bouquet, to Messrs. *Hovey & Co.*, $2.

For the second best do do., to Messrs. *Winship*, $1.

For the best six hand bouquets, to *Azell Bowditch*, $2.

For the second best six do., to Messrs. *Hovey & Co.*, $1.

GRATUITIES.

The Flower Committee award the following gratuities, viz.

To *Samuel Walker*, for a display of Ranunculus, $3.

To *J. L. L. F. Warren*, for six hand bouquets, $1. For this and a previous display of Rhododendrons, $3

To *J. E. Teschemacher*, for a plant of Ismene calathina, and plants of Echinocacius, spec. Ottonis, mammillarioides, (a seedling,) and Eyriesii, $3.

FRUITS.—Mr. *Allen*, of Salem, presented six varieties of Grapes, full ripe; also Figs and Mayduke cherries.

VEGETABLES.—From *O. H. Mather*, by Thomas Needham, string beans and a brace of Cucumbers.

From A. D. Williams, Lettuce, Rhubarb, and a brace of Cucumbers.

From *A. Robertson*, New-Bedford, by Wm. Brims, Rhubarb.

From *J. L. L. F. Warren*, by John Cadness, Giant and Victoria Rhubarb.

Saturday, June 19, 1847.

FLOWERS.—From M. P. Wilder, President of the Society, fine plants of Fuchsia, viz. Empress, a fine new variety, with blush white sepals, and purplish pink corolla, large flower, one of the best varieties; Lady of the Lake, blush sepals, crimson corolla, fine; Vesta, flesh-colored sepals, crimson and scarlet corolla; also Venus Victrix and Frostii; two Calceolarias, new spotted seedlings; Gladiolus Colvillii; also, Pæonias, Whiteleji, Humei, and Richardsonii.

From *J. L. L. F. Warren*, Rhododendrons in var., Pæonia officinalis, Phlox suaveolens and maculata, Philadelphus grandiflorus, Plumbago Zeylanica, Bouvardia triphylla, Myosotis arvensis, Harrison and Scotch Roses, Papaver orientalis, Polemonium, Passiflora fragrans, Clematis integrifolia, Caprifolium Douglasii, Daisies, Pinks, etc. Also, eight flat and five hand bouquets.

From *Samuel Walker*, a seedling Phlox, from maculata, with larger corolla, and more compact head or panicle, an improvement upon the old variety. A fine specimen of Lychnis viscaria, very rare double variety; new crimson Boursalt Rose; Spiræa filipendula plena, etc.

From *Augustus Aspinwall*, Hardy Perpetual and other Roses in great variety.

From *A. Bowditch*, Roses, Pæonia Whiteleji, Hemerocallis flava, Polemonium cæruleum, var. alba, Valeriana Phu and other cut flowers. Several pot plants, viz. Five Fuschias, one Russelia juncea and one Pelargonium, also seven hand bouquets.

From *E. M Richards*, Lupinus polyphyllus, Papaver orientalis, Hemerocallis flava, Iris in var.; Dictamnus fraxinella, two var., Pæonies, Sarracenia purpurea, a curious indigenous plant, Arethusa bulbosa, a beautiful orchideous native flower, Lonicera in var., with other cut flowers in variety.

From *Joseph Breck & Co*, numerous cut flowers filling seven stands; including a great variety of hardy Roses, Lonicera in var., Papaver orientalis, Iris in var., Dictamnus fraxinella, two var., Hemerocallis flava, Pæonia Whiteleji and Pottsii, Tradescantia virginica, var. alba and plena, Delphinium Barlowii and sinensis, Campanula pulchella, Spiræa filipendula plena, Lupinus polyphyllus Baptisia, two var., Phlox maculata, Pansies, Aquilegias, Veronica spicata, Valerian, Lychnis, etc.

From *William Kenrick*, by Miss Russell, one large flat, and one pyramidal bouquet, and cut flowers in var.

From *James Nugent*, a fine show of cut flowers, including Pelargoniums, Roses, fine specimens of Gladiolus blandus, Cactus, Verbenas, and other green-house plants in variety.

From *S R. Johnson*, Pæonia Whiteleji, fine specimens, and Acacia rosea.

From *W B Richards*, one large bouquet, and fine specimen of Rocket Candytuft.

From *Wm. Mellar*, one large circular, and two small flat bouquets; also cut flowers in variety, including seedling Pelargoniums, Iris, Pansies, and seedling scarlet Trumpet Honeysuckle, etc.

From *Hovey & Co*, one pyramidal bouquet, and six hand do. also a plant of Hydrangea japonica, a flower of great magnificence and beauty

From *J. L. Gardiner*, by J. Thomas, eight pot plants, viz. four Pelargoniums, and four Calceolarias; also a fine design, or two-sided semi-circular bouquet upon a moss covered stand, one side composed of Dahlias, Roses, etc., the other of choice green-house plants. Also a moss vase, with a bouquet of indigenous and other flowers.

From Mr. *Crowninshield*, by John Quant, eighteen plants of fine Pelargoniums.

From *O H Mather*, a great variety of cut flowers from the green-house, embracing many fine specimens of Cactus, Calceolarias, Cinerarias and Pelargoniums; among the latter was a fine seedling; Clematis grandiflora, Roses, Phlox Drummondii, var. alba, very fine, &c. &c.

From Messrs. *Winship*, a great variety of shrubby and herbaceous flowers, filling the two circular and three side stands, among which was a fine display of hardy Azaleas, Scotch, Harrison and other Roses, Pæonias, Spiræas, Iris, Rose Acacia, Loniceras, etc., etc; also two large flat bouquets.

AWARD OF PREMIUMS.

The Flower Committee, Messrs. Quant, Richards, and Dutton, judges, award as follows:

For the best six pot plants, first premium to *J. L. Gardiner*, by J. Thomas, $2.

For the second best six do., second premium to Mr. *Crowninshield*, by John Quant, $1.

A gratuity to Messrs. *Hovey & Co.*, for a rare specimen of Hydrangea japonica, in bloom, $3.

For the best six hand bouquets, to Messrs. *Hovey & Co.*, $2.

For the second best do. do., to *J. L. L. F. Warren*, $1.

A gratuity to *Azell Bowditch*, for hand bouquets, $1.

For a design, a stand with an oval bouquet with two faces or fronts, one composed of green-house flowers, the other of flowers of open culture, a premium to *John Thomas*, of $2.

For a moss vase filled with 40 varieties of beautiful indigenous and other flowers, a gratuity to *John Thomas*, of $2.

For the best large bouquet, to *Wm. Mellar*, a premium of $2.

For the second best do. do., to *W. B. Richards*, $1.

For a pair of mantel bouquets, a premium to the Messrs. *Winship*, of $2.

FRUITS.—Peaches fully ripe, viz. Cooledge's Favorite, very fine, by Mr. *O. Johnson* of Lynn; also specimens by Mr. *Allen* of Salem.

Grapes, six varieties by Mr. *Allen;* also, Hunt's Early Tawny Nectarine, and Black Figs.

Cherries, by Mr. *Allen*, viz Mayduke, Elton, fine and Black Tartarian.

Lemons, by Mrs. *L. Spaulding* of South Reading.

Strawberries by *John Hill*, four boxes of Early Virginia.

VEGETABLES.—From Messrs. *Winship*, Victoria Rhubarb, twelve stalks, weight 12½ pounds, Water Cresses.

From *B. V. French*, Giant Rhubarb, six stalks, weight 7 pounds; Victoria Rhubarb, twelve stalks, weight 15 pounds.

From *T. H. Perkins*, by William Quant, Victoria Rhubarb.

From *Hazen Hazeltine*, Somerville, by John Martin, new Potatoes, first of the season.

Saturday, June 26, 1847.

FLOWERS.—From M. P. Wilder, President of the Society, a great variety of Hardy and Green-house Roses and cut flowers, not in competition with other amateurs. We noticed among the Pæonias some varieties which were quite novel; the central part of one variety (Duchess de Nemours.) is composed of numerous fine pale yellow petals, with a row of broad blush white exterior ones. We have heard of a yellow variety of Pæonia in Europe, and doubted its existence, but from the appearance of this variety we can no longer doubt. The variety *Sulphurea* has some resemblance to Whiteleji, but instead of being a pure white, has a sulphur tint; the other new varieties exhibited were prolifera tricolor, triumphans, grandiflora carnea, plenissima variegata, and Hericartiana; also the old varieties, Whiteleji, Reevesii, Pottsii, Richardsonii, Humei, and fragrans. Mr W. also exhibited plants of the Gladiolus Wilhelmus, bright scarlet with white stripe, and G. Lisette, with large Orange flower, and pink white stripe, both of them very beautiful. Also fine specimens of Spiræa aruncus and japonica.

From *Wm. Mellar*, fine double Pinks, Roses, Pelargoniums, etc.; also two bouquets.

From *J. L. Gardner*, by J. Thomas, eight pot plants, viz. Miltonia spectabilis, a beautiful, rare epiphyte plant, a native of Bengal; Epidendrum spec., a curious orchideous plant from Mexico; three Pelargoniums, two Fuchsias, and one seedling Calceolaria Also a globe bouquet or design.

From *W. B. Richards*, three bouquets, and specimens of Iberis coronaria.

From *O. H. Mather*, a great variety of beautiful greenhouse and hardy plants, including roses, Verbenas, Pelargoniums, Cytissus racemosus, Pinks, Lupins, Stocks, Alstrœmeria, Salvia patens, Phlox Van Houttii and Drummondii, var alba, Petunia in variety, &c.

From Messrs. *Winship*, one pair of mantel bouquets, fine specimens of Virgilea lutea, a great variety of hardy and other roses, and other cut flowers, in variety, including a fine display of hardy Azaleas, of which these gentlemen have made a beautiful show for four weeks in succession.

From *Wm Kenrick*, by Miss Russel, one large design or bouquet, composed of a great variety of flowers; also a large number of vases filled with fine specimens of Pœonies and other flowers.

From *Joseph Breck & Co.*, a great variety of Roses, Pœonies and herbaceous plants.

From *E. Wight*, Roses.

From *E. M. Richards*, Roses and other cut flowers in great variety.

From *Augustus Aspinwall*, a beautiful collection of fine Roses.

From Capt. *Macondray*, fine Roses.

From *Samuel Downer, Jr.*, large branches of Boursalt and Hybrid perpetual Roses.

From *J. L. L. F. Warren*, one pyramidal and eight hand bouquets. Also Roses in great variety, Pœonies and other cut flowers; six pot plants, viz. two Fuchsias paragon, one Anigozanthus coccineus, Lilium thunbergianum, one Sollya heterophylla and one Mahernia odorata.

From *A. Bowditch*, Roses, Pœonies, Sweet Williams and other cut flowers. Also, six hand bouquets.

From *S Walker*, Pœonies and herbaceous plants in great variety.

From *Hovey & Co.*, one large flat bouquet or design; two pyramidal do., and six hand do. Also Roses in great variety.

AWARD OF PREMIUMS.

On Roses—William Quant, J. Thomas and S. Walker, Judges

Class No. I. *Hardy Roses.*—For the best thirty varieties, to *J. Breck & Co.*, the first premium of $8.

To *Hovey & Co.*, second do., $6.

To *J. L. L. F. Warren*, third do., $4.

To *J. Breck & Co*, for the best display, $3.

Class No. II. For the best twelve varieties, to Messrs. *Winship*, the first premium of $5.

To *A. Bowditch*, second premium of $3.

Class No. III. *Hardy Perpetuals*—For the best ten flowers, to *J. Breck & Co.*, first premium of $5.

To *A. Aspinwall*, second do., $4.

To *J. Breck & Co*, best display, $3.

On Pœonies, Pinks, Pot Plants and Bouquets.—H. W. Dutton, E. A. Story, and Thomas Needham, Judges.

Pœonies.—For the best twelve flowers, having regard to the number of varieties, to Messrs. *Breck & Co.*, $5.

For the second best do. do., to *S Walker*, $3.

For the best display, to Messrs *Breck & Co.*, $3.

Pinks—First and second premiums were not awarded, as there were no competitors within the rule.

For the best display, to *Wm. Mellar*, $2.

A gratuity to Messrs. *Breck & Co.*, for fine specimens, $2.

Pot Plants—For the best six pot plants, to *J. L. L. F. Warren*, a premium of $2.

For the second best do. do., to *J. Thomas*, $1.

Designs.—For the best, to *Hovey & Co.*, $2.

For the second best, to Miss *Russell*, $1.

A gratuity to *J. Thomas*, $1.

Bouquets—For the best pair of mantel bouquets, to the Messrs *Winship*, $2.

For the best Pyramidal bouquet, the Messrs. *Hovey*, $2.

For the second best, to *J. L. L. F. Warren*, $1.

For the best six hand bouquets, to *J. L. L. F. Warren*, $2.

For the second best do do., to *Azell Bowditch*, $1.

The committee award a gratuity of $5, to *M. P. Wilder*, for fine display of new Pœonies.

FRUITS.—On no former occasion did our weekly exhibition present more to admire. If we turn aside for a moment to pay our court and respect to our lovely Flora, seated upon her rose-scented couch, our excuse must be that we found her tête-à-tête with our beloved Pomona. They were both so gaily dressed, in the *newest* summer fashion, for the occasion, that to have passed by without a renewal of our allegiance, would have subjected us to the charge of lacking in courtesy—that our gallantry was on the wane—and that we were guilty of treason in not giving "aid and comfort" to her "unrivalled charms."

Flora, surrounded by her thousand handmaids, introduced us to the generous Pomona. It is our humble duty to describe what we saw at her court; and although it is almost as difficult to perform, as it is pleasant to contemplate, where so many things were rich "beyond compare," we shall proceed to our task by stating that the tables were strewed with Grapes, Peaches, Nectarines, Figs, Plums and Strawberries, viz:

Strawberries, var. Princess Alice Maude and Hovey's Boston Pine, by the *President of the Society.*

Grapes, var. Black Hamburg, Grizzly Frontignan Golden Chasselas, and Muscat of Alexandria, from the grapery of Hon *T. H. Perkins*, by Wm Quant.

John Fisk Allen, of Salem, exhibited twenty-two varieties of Grapes; among them we noticed Tottenham Park Muscat, Wilmot's new Black Hamburg, (fine,) Austrian Muscat, (new,) Purple Muscat, (new,) Zinfendal, (fine,) Muscat of Alexandria, (fine.) The Grapes by Mr. Allen, were tasted by the Committee: they were ripe in great perfection.

The Society's first premium of ten dollars was awarded to Mr. *Allen*, and the second premium to Mr. *Quant.*

A Aspinwall, of Brookline, presented a basket of extra fine Strawberries, var Hovey's Seedling.

By *N. Stetson*, of Bridgewater, very fine specimens of Boston Pine and Jenny's Seedling Strawberries.

Two boxes of Early Virginia Strawberries, by *Otis Johnson*, of Lynn.

S. Downer, jr., of Dorchester, exhibited Hovey's Seedling, Ross's Phœnix, Early Virginia, Wiley's Seedling, and Wood Strawberries.

By *John Duncklee*, Hovey's Seedling Strawberries.

By *Isaac Fay*, Fay's Seedling Strawberries.

By *Josiah Richardson*, Cambridge, Richardson's Seedling; also, Hovey's Seedling, and Boston Pine Strawberries.

A Seedling Strawberry, by *Charles F. Putnam*, Salem; branches and fruit large, appearance good; represented to be a great bearer; pistillate.

By *James M. Richardson*, from the garden of Capt. Lee, a seedling Strawberry—large, but the specimens were not highly flavored; probably not fully ripe.

Azell Bowditch presented "Stoddard's Seedling" Strawberries. They were poor specimens of the "Wood."

By *J. L. L. F. Warren*, of Brighton, seven varieties of Strawberries, viz: British Queen, Prince Albert, Hovey's Seedling, Willey's do., Mottier's do., Early Virginia and Alpine.

By Messrs. *Hovey*, Boston Pine Strawberries.

By *John Owen* of Cambridge, Wood, Red and White, and also a seedling Strawberry

Mr. *Cole*, presented an Apple for a name.

By *J. F. Allen*, of Salem, Figs, Plums and Nectarines.

Peaches—by Mr *Bowditch*, of Roxbury, and *O. Johnson*, of Lynn.

Several of the seedling Strawberries presented were large, and of fine appearance; but to enable the Committee to judge of their respective merits, the specimens should have been fully ripe. And in addition to this, it is highly important to learn whether the plants will bear a full crop of large sized fruit. Of the merits of such new varieties as may be presented, the Committee will form and give an opinion when they have tasted the fruit *fully ripe*, and have examined and found the variety to be truly "a fruitful vine."

VEGETABLES.—From *Josiah Lovett*, 2d, thirteen stalks of Giant and Victoria Rhubarb, weighing 21 lbs.; some of the stalks measuring 43 inches.

From *O. H. Mather*, by Thomas Needham, some fine Cucumbers.

From *T. H. Perkins*, by Wm. Quant, some fine Palestine Lettuce.

From Mrs. *Pratt*, by A. McLennan, Royal Cape Lettuce.